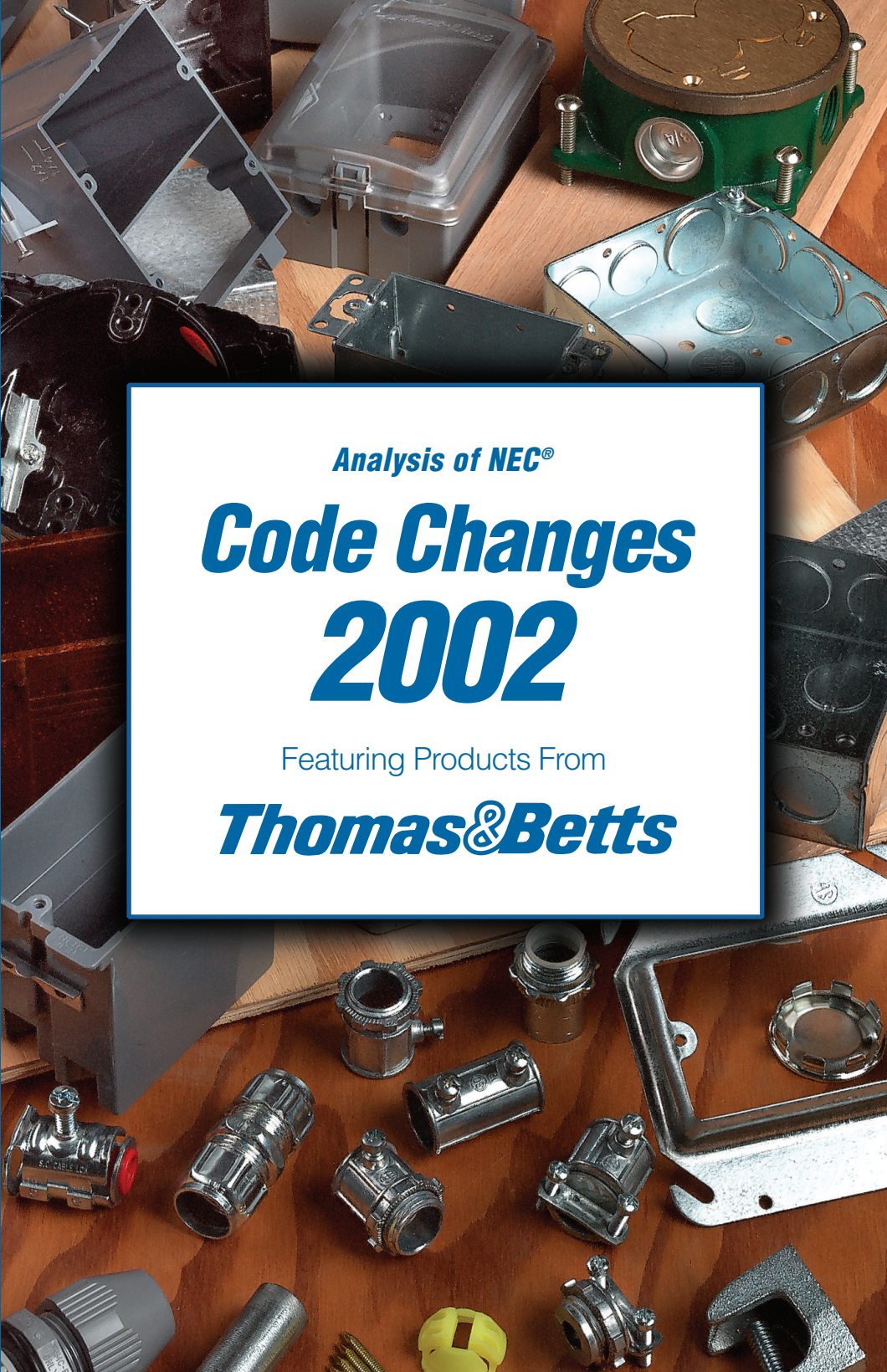

Analysis of NEC®

Code Changes 2002

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- Unique key-lock option

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Nonmetallic with clear cover. Unique lip design provides water-tight seal.

* NEC, Section 406.8(B) (1) 15- and 20-Ampere, 125- and 250-volt receptacles installed outdoors in a wet location shall have an enclosure that is weatherproof whether or not the attachment plug cap is inserted.

Go to pages 68 & 70 for more details.

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On the following pages are changes to the National Electrical Code for the 2002 Code cycle. This is not intended to be an iteration of all the changes, but a listing of those that may affect the Thomas & Betts product lines.

This document was compiled through the efforts of the Technical Liaison Department of Thomas & Betts, and is the property of Thomas & Betts. If you have any questions or require interpretation assistance please contact one of the following:

Tim McNeive 1-800-888-0211 Ext. 5785
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George Dauberger 1-800-888-0211 Ext. 5191

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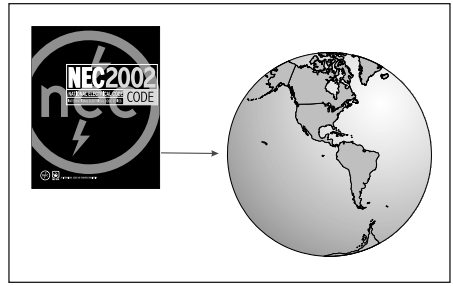
Article 90 – Introduction



T&B PRODUCT: All

Section 90.1 (D) Purpose; Relation to International Standards.

This new text is a declaration that the NEC addresses the fundamental principles of protection for safety contained in Section 131 of International Electrotechnical Commission (IEC) Standard 60364-1.

ANALYSIS OF CHANGE: This declaration supports the international relevance of the NEC which is used as the basis for electrical installations in many nations outside the U.S., principally in the Western Hemisphere.

Article 90 – Introduction (Continued)

T&B PRODUCT: All

Section 90.7 FPN No. 3 Examination of Equipment for Safety; FPN No. 3.

For informational purposes only, ANNEX A contains a list of the product standards that apply when a Section of the Code requires a product to be “listed”.

ANALYSIS OF CHANGE: This informative ANNEX will be of value to the inspector and should head off many Technical Services calls.

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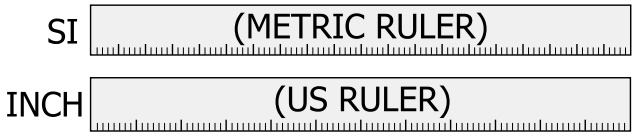
Article 90 – Introduction (Continued)

T&B PRODUCT: All

Section 90.9 Units of Measurement.

The 2002 NEC has established metric units (SI) of measurement as the primary units. Imperial units (inch-pound) are retained in parenthesis.

ANALYSIS OF CHANGE: Metric conversion was determined necessary by the publisher, NFPA, to support the "international" use of the NEC and the U.S. legislative mandate for design and construction of federal buildings using metric units of measurement. An attempt was made to minimize the impact of this change. Rounding of SI unit conversions (hard conversion) was used where no significant impact was foreseen. Exact SI conversion (soft conversion) was used where determined critical for compliance.



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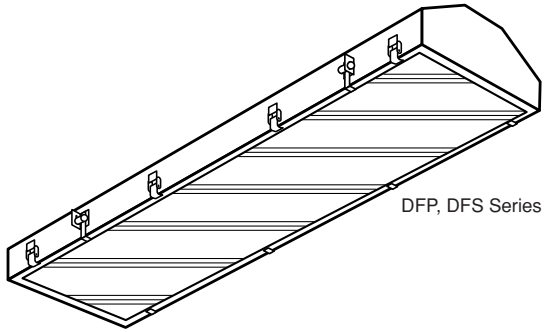
Article 100 – Definitions

T&B PRODUCT: Lighting and Outlet Boxes

Section I General.

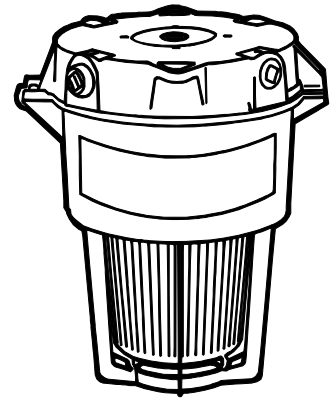
The word “Luminaire” has been introduced in the NEC to replace the reference to “Fixture” as it has historically been used in reference to a lighting fixture.

ANALYSIS OF CHANGE: The lighting industry has established preferred use of the work “Luminaire” as the international reference to lighting fixtures. Also, see Article 410.



DFP, DFS Series

VWG-C



Ceiling Mount

• Hazlux® and red•dot® products shown.

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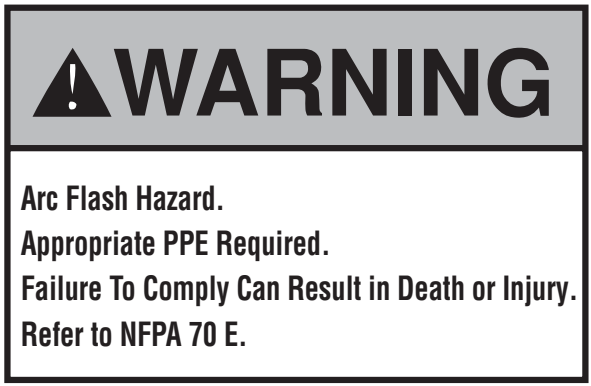
Article 110 – Definitions

T&B PRODUCT: Electricians' Supplies (Catalog Number LB94913)

Section 110.16 Flash Protection.

Switchboards, panelboards, industrial control panels, and motor control centers in other than dwelling occupancies and are likely to require examination, adjustment, servicing, or maintenance while energized shall be filed marked to ware qualified persons of potential electric arc-flash hazards. The marking shall be located so as to be clearly visible to qualified persons before examination, adjustment, servicing, or maintenance of the equipment.

ANALYSIS OF CHANGE: This new marking standard is intended to reduce the occurrence of serious injury or death due to arcing faults from energized electrical equipment. The warning label reminds a qualified worker that a serious arc-flash hazard could exist on energized equipment and that workers should follow appropriate work practices including wearing personal protection equipment (PPE) for these type hazards.



Thomas & Betts Catalog No. LB94913

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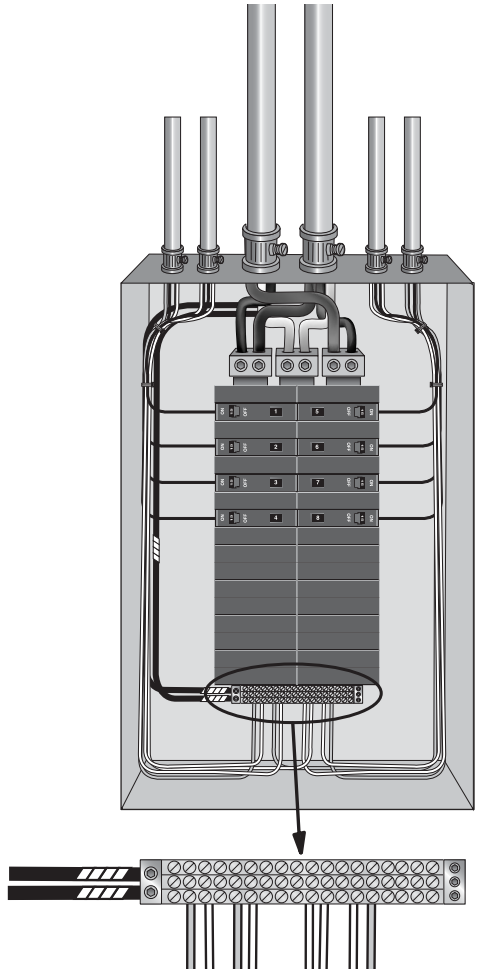
Article 200 - Use and Identification of Grounded Conductors

T&B PRODUCT: Wire Markings

Section 200.6 Means of Identifying Grounded Conductors.

The term “natural gray” was changed to “gray” as an acceptable color for identifying grounded conductors.

ANALYSIS OF CHANGE: The term “natural gray” may have been interpreted as meaning an off-white color. Some installations may have allowed gray as means to identify an ungrounded conductor. A fine print note was added to caution users of this past practice.



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Article 210 - Branch Circuits

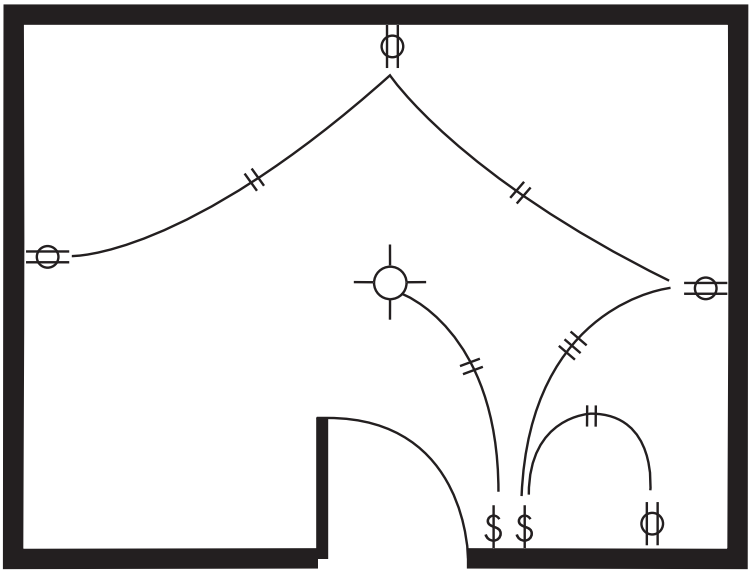
T&B PRODUCT: Circuit Breakers

Section 210.12 Arc-Fault Circuit-Interrupter Protection.

The requirement for Arc-Fault Circuit-Interrupters in bedrooms, first introduced in the NEC with a January 1, 2002 effective date, becomes effective with the 2002 NEC. In 210.12 (B) "…receptacle outlets installed in dwelling unit bedrooms…" has been changed to remove the word "receptacle".

ANALYSIS OF CHANGE: This requirement is now effective and all outlets in dwelling unit bedrooms must be protected by an arc-fault circuit-interrupter. The code was worded to include branch circuit protection which eliminates the use of an AFCI device.

Typical dwelling unit bedroom



Branch circuits that supply 125-volt, 15- and 20-ampere outlets in dwelling unit bedrooms required to have AFCI protection.

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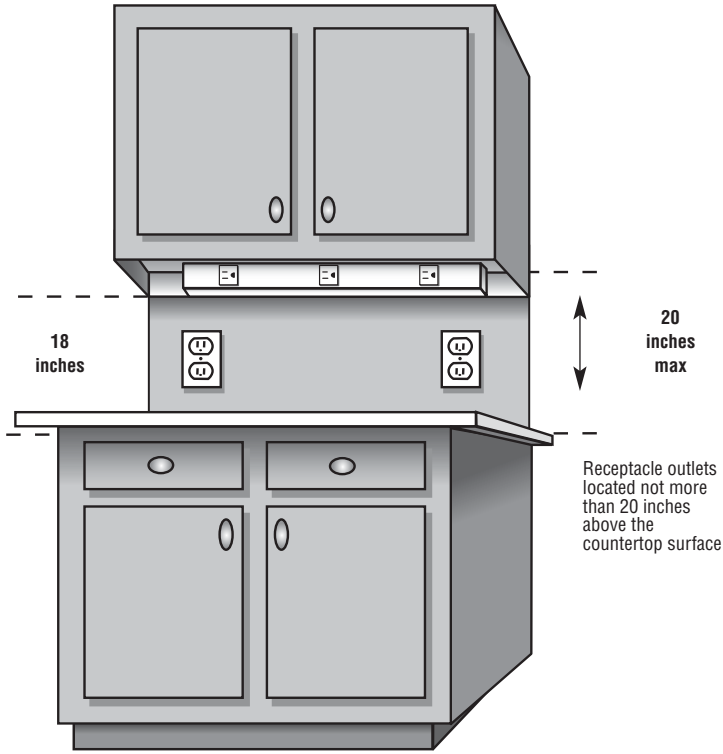
Article 210 - Branch Circuits (Continued)

T&B PRODUCT: Surface Raceway

Section 210.52(C)(5) Exception (b) Dwelling Unit Receptacle Outlets; Countertops; Receptacle Outlet Location; Exception (b).

The exception limitation has been amended from 18 inches to 20 inches above the kitchen countertop.

ANALYSIS OF CHANGE: This subtle change will now permit installation of surface raceway multi-outlet strips under a cabinet (mounted at standard height) in the 2 inch recess under the upper cabinet that supports the bottom shelf.



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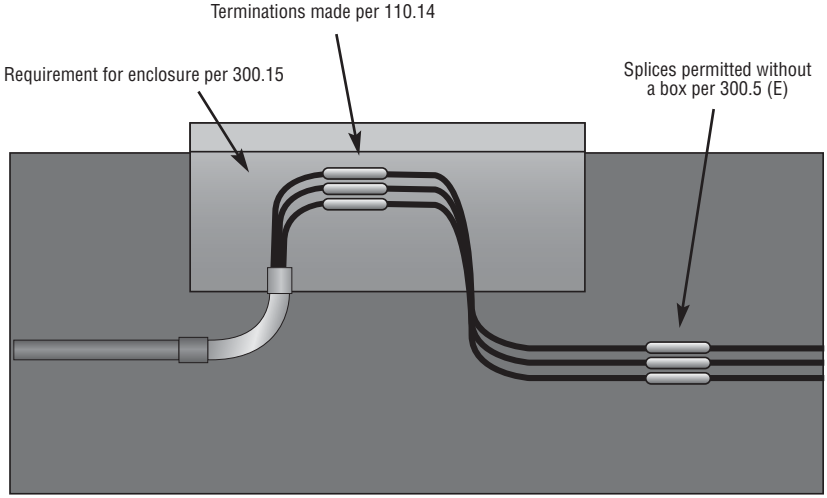
Article 230 – Services

T&B PRODUCT: Connectors

Section 230.33 Spliced Conductors. (Underground Service-Lateral Conductors)

Service lateral conductors are now permitted to be spliced or tapped in accordance with 110.14, 300.5(E), 300.13, and 300.15

ANALYSIS OF CHANGE: Splices are permitted without a box as per 300.5(E). The connectors must be listed for the purpose.



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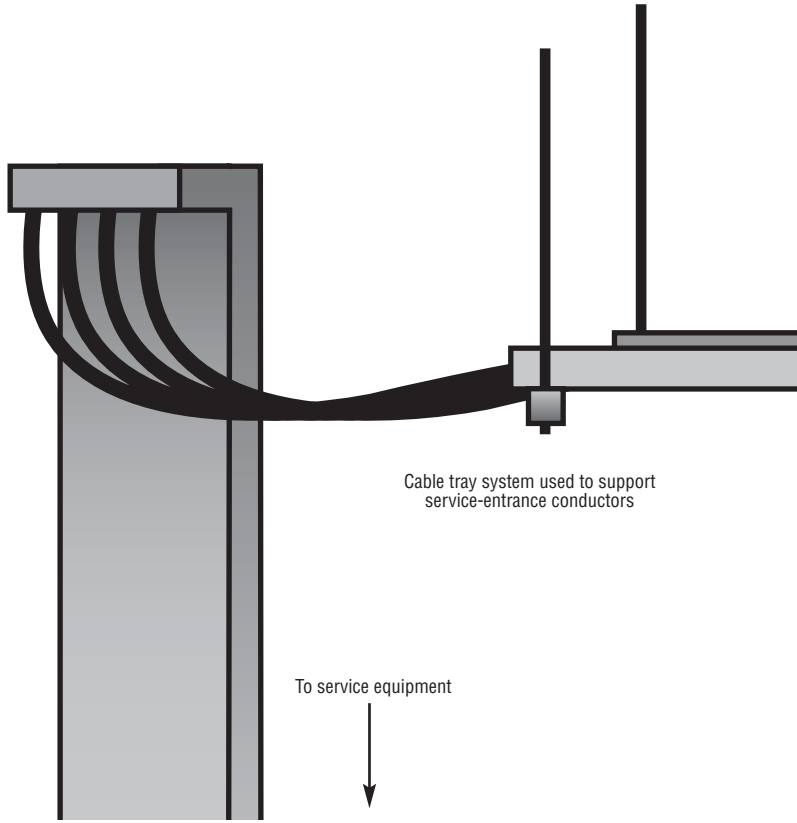
T&B PRODUCT: Cable Tray

Section 230.44 Cable Trays.

Cable tray systems shall be permitted to support cable used as service entrance conductors.

ANALYSIS OF CHANGE: This is a clarification change. Cable trays were not specifically identified as a support system for service entrance cables.



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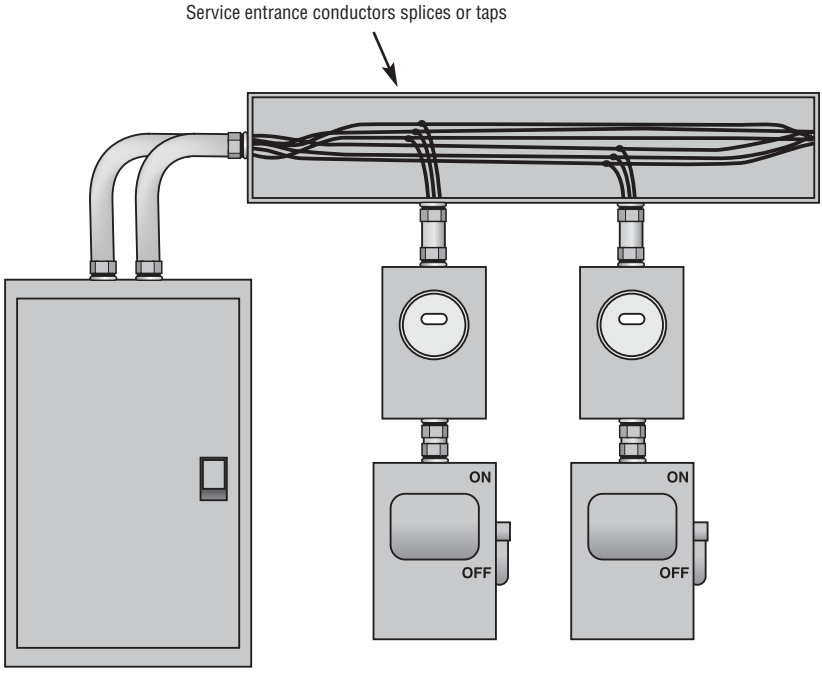
Article 230 – Services (Continued)

T&B PRODUCT: Connectors

Section 230.46 Spliced Conductors. (Service-Entrance Conductors)

Service entrance conductors shall be permitted to be spliced or tapped in accordance with 110.14, 300.5(E), 300.13, and 300.15.

ANALYSIS OF CHANGE: Previous wording specifically stated bolted or clamped means for connections. Compression connectors are now suitable for this purpose.



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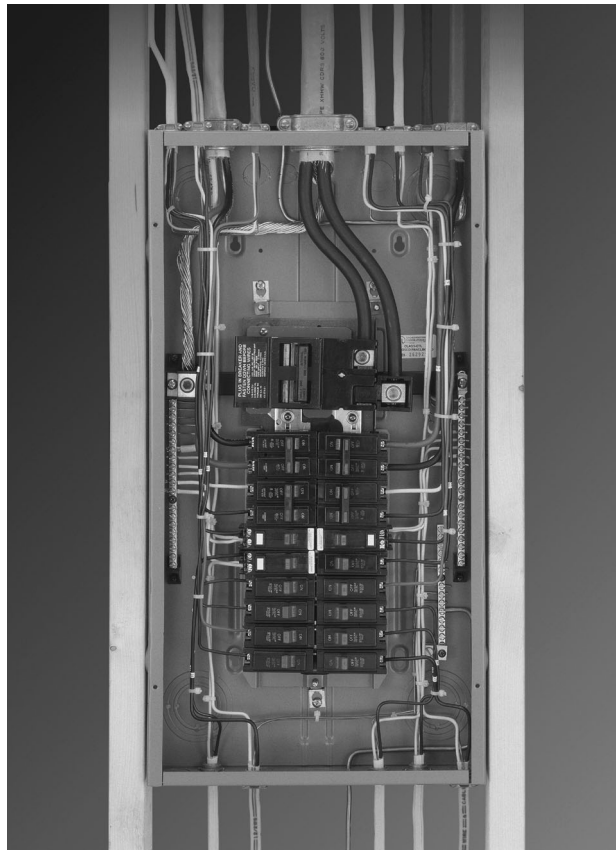
Article 230 – Services (Continued)

T&B PRODUCT: Circuit Breakers

Section 230.71(A) Maximum Number of Disconnects; General.

The words “or sets of” regarding the circuit breakers serving as a service disconnect were added.

ANALYSIS OF CHANGE: Clarity was added to the code; individual circuit breakers connected together with appropriate handle tie(s) are recognized as a single disconnecting means.



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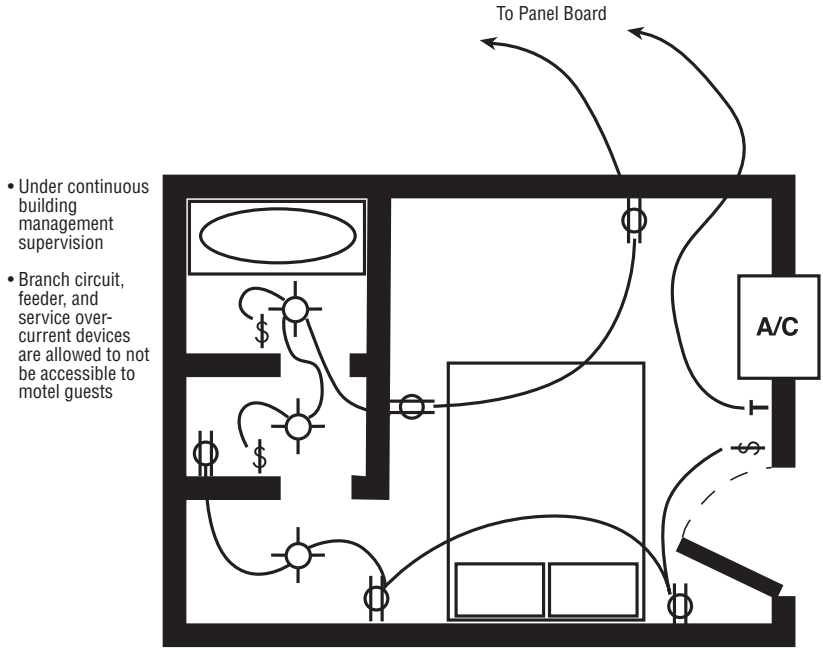
Article 240 - Overcurrent Protection

T&B PRODUCT: Circuit Breakers

Section 240.24(B) Exception No. 2 Location in or on Premises; Occupancy; Exception No. 2.

Branch circuit overcurrent devices supplying any guest room shall be permitted to be accessible to only authorized management personnel for hotels and motels that are intended for transient occupancy.

ANALYSIS OF CHANGE: Previous code wording did not include branch circuit protection; it was limited to services and feeders.


To Panel Board
• Under continuous building management supervision
• Branch circuit, feeder, and service over-current devices are allowed to not be accessible to motel guests
A/C

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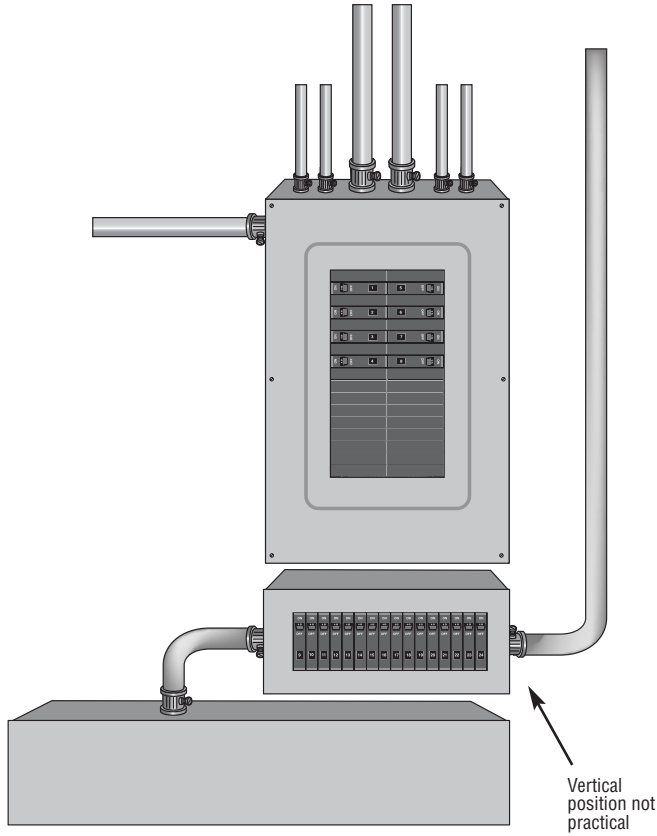
T&B PRODUCT: Panelboards

Section 240.33 Vertical Position.

Enclosures for overcurrent devices may be mounted in the horizontal position if impractical to mount the enclosure in the vertical position. The circuit breaker must be installed in accordance with 240.81.

ANALYSIS OF CHANGE: The code acknowledges that some installations need the enclosure to be mounted in the horizontal direction. The circuit breaker must be installed such that “on” is in the up position.



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T&B PRODUCT: Circuit Breakers

Section 240.83(D) Marking; Used as Switches.

Where circuit breakers are used for switches for HID lighting, the circuit breakers must be marked HID.

ANALYSIS OF CHANGE: This is a new requirement as HID lighting applications have been determined to be severe applications for switching. An HID marked breaker may be used in a switching duty (SWD) application.

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Article 250 - Grounding

T&B PRODUCT: Grounding products

Section 250.2 Definitions.

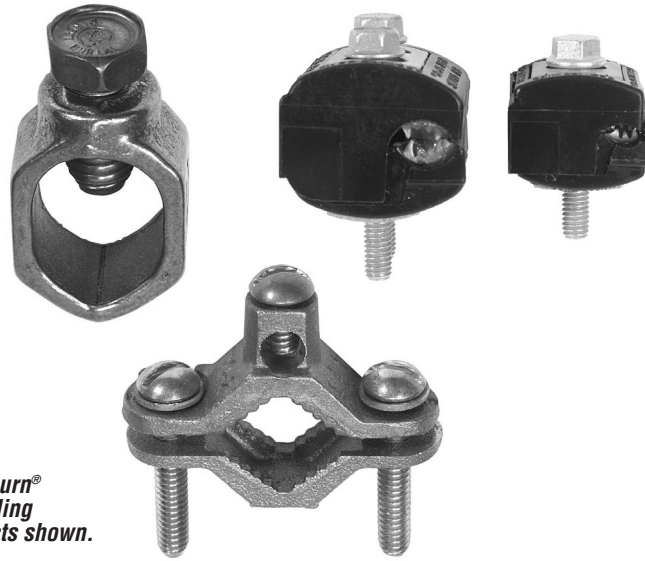
New Definitions were added to article 250. These terms are used in 250.4.

Effective Ground Fault Current Path - An intentionally constructed, permanent, low-impedance electrically conductive path designed and intended to carry current under ground fault conditions from the point of a ground fault on a wiring system to the electrical supply source.

Ground Fault – An unintentional, electrically conducting connection between an ungrounded conductor of an electrical circuit and the normally non-current carrying conductors, metallic enclosures, metallic raceways, metallic equipment, or earth.

Ground-Fault Current Path – An electrically conductive path from the point of a ground fault on a wiring system through normally non-current carrying conductors, equipment, or the earth to the electrical supply source.

ANALYSIS OF CHANGE: These terms better describe the conditions described and outlined in article 250.4.



• Blackburn® grounding products shown.

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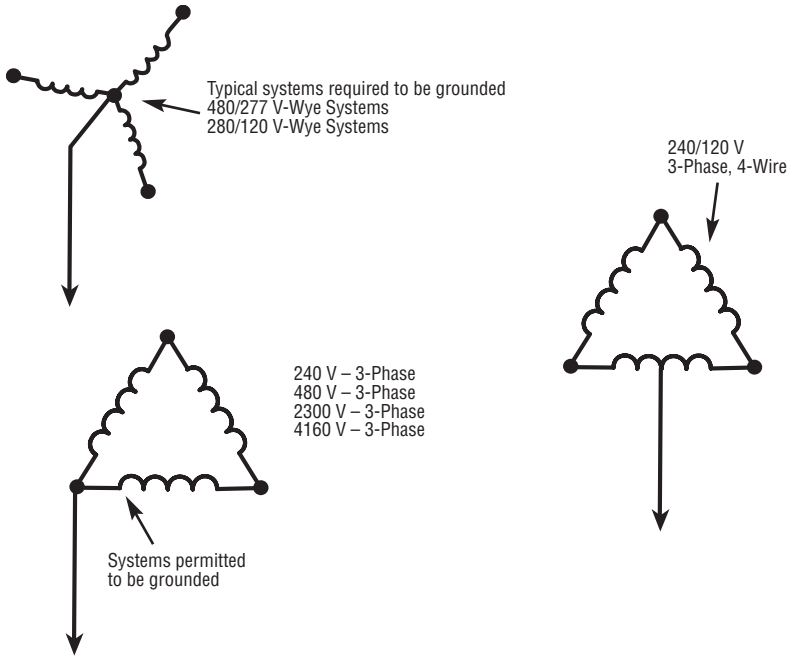
Article 250 – Grounding (Continued)

T&B PRODUCT: Grounding products

Section 250.20 Alternating-Current Circuits and Systems to Be Grounded.

A new sentence was added to the Code. If such systems are grounded, they shall comply with the applicable provisions of this article.

ANALYSIS OF CHANGE: If someone chooses to ground a system, such as a corner grounded delta transformer connection, then grounding must be in compliance with article 250. In past years, only systems required to be grounded had to be grounded in accordance with article 250.



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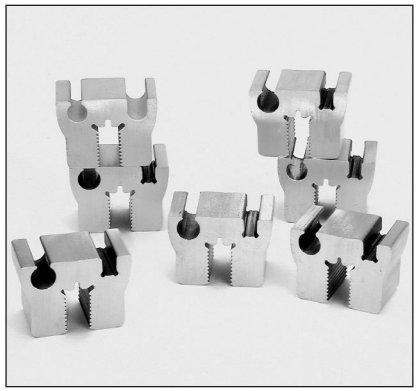
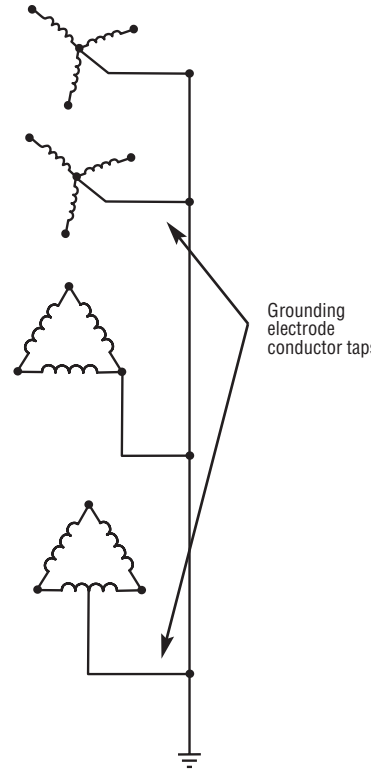
T&B PRODUCT: Color Keyed, Blackburn connectors

Section 250.30(A)(2) and (3) Grounding Separately Derived Alternating-Current Systems; Grounded Systems; Grounding Electrode Conductor; Grounding Electrode Conductor Taps.

Additional text was added to cover the bonding requirements for exposed structural steel or interior metal piping served by a separately derived system.

ANALYSIS OF CHANGE: The change recognizes the use of a common grounding electrode conductor, sometimes referred to as a “backbone”. The T&B busbar connectors, GBBC22 and GBBC26 are ideal products for attaching to a busbar type common grounding electrode conductor.





• Blackburn® GBBC22 and GBBC26 products shown.

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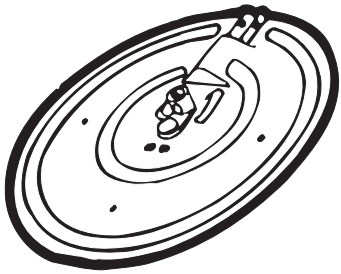
Article 250 – Grounding (Continued)

T&B PRODUCT: Grounding products

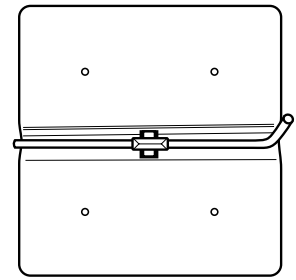
Section 250.50, 250.52, and 250.53 Grounding Electrode System; Grounding Electrodes; Grounding Electrode System Installation.

The article was re-organized to separate into three sections; grounding electrode systems, grounding electrodes, and grounding electrode system installation.

ANALYSIS OF CHANGE: This was a revision to add clarity to the existing requirements and make it easier for users to find applicable requirements. The term “made electrode” is no longer used in the code.



GP100 shown



PBGW shown

• Blackburn® products shown.

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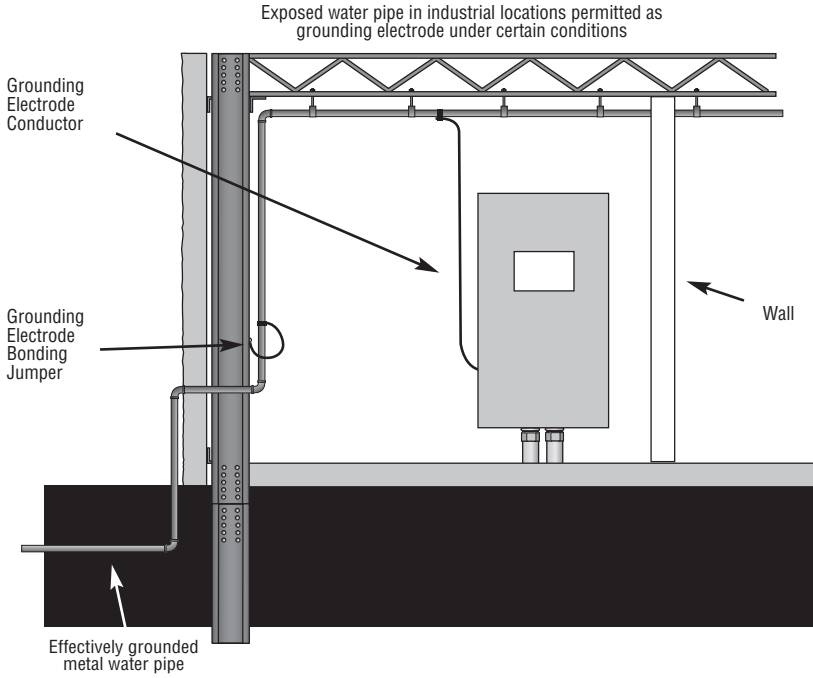
Article 250 – Grounding (Continued)

T&B PRODUCT: Grounding connectors

Section 250.52(A)(1) Grounding Electrodes; Electrodes Permitted for Grounding; Metal Underground Water Pipe.

Changes were made in this article that allows interior metal water piping to be used as a grounding electrode conductor beyond the 5 feet limitation.

ANALYSIS OF CHANGE: These changes were made to help industrial establishments provide grounding to interior systems. There are several limitations on using the above new allowance; the facility must be under maintenance/supervision and the piping is exposed for its entire length other than short sections passing through walls. The piping must pass through the walls in a perpendicular direction.


Exposed water pipe in industrial locations permitted as grounding electrode under certain conditions
Grounding Electrode Conductor
Grounding Electrode Bonding Jumper
Wall
Effectively grounded metal water pipe

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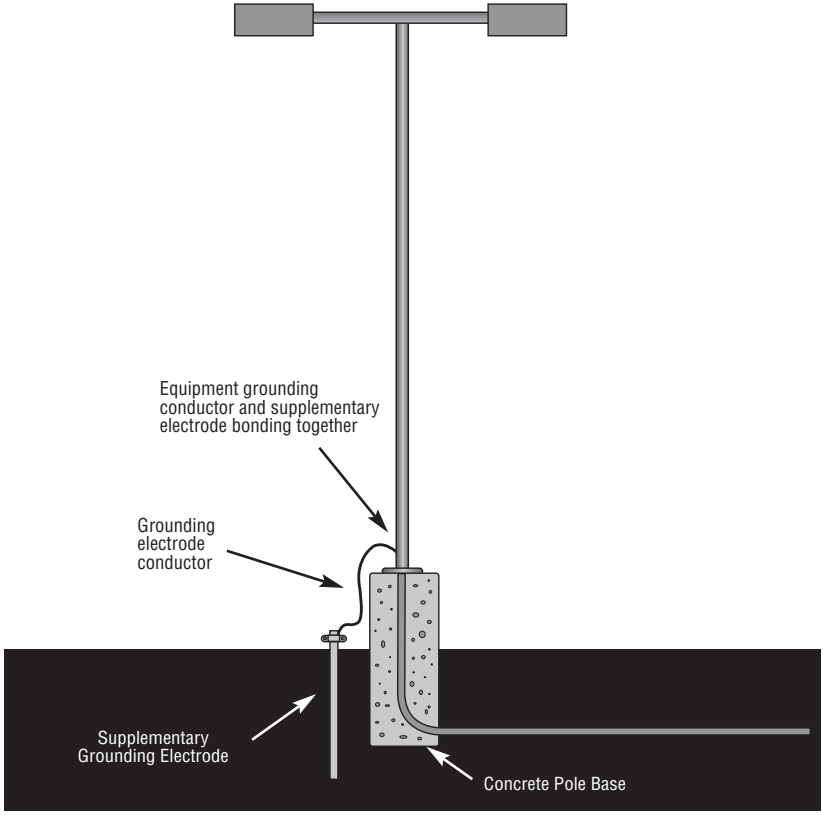
Article 250 – Grounding (Continued)

T&B PRODUCT: Grounding connectors

Section 250.54 Supplementary Grounding Electrodes.

Revised wording clarifies rules regarding the installation of supplementary grounding electrodes.

ANALYSIS OF CHANGE: When someone chooses to install a supplementary grounding electrode, it is not required to be bonded to the grounding electrode system. An example of this is a parking lot luminaire.


Equipment grounding conductor and supplementary electrode bonding together
Grounding electrode conductor
Supplementary Grounding Electrode
Concrete Pole Base

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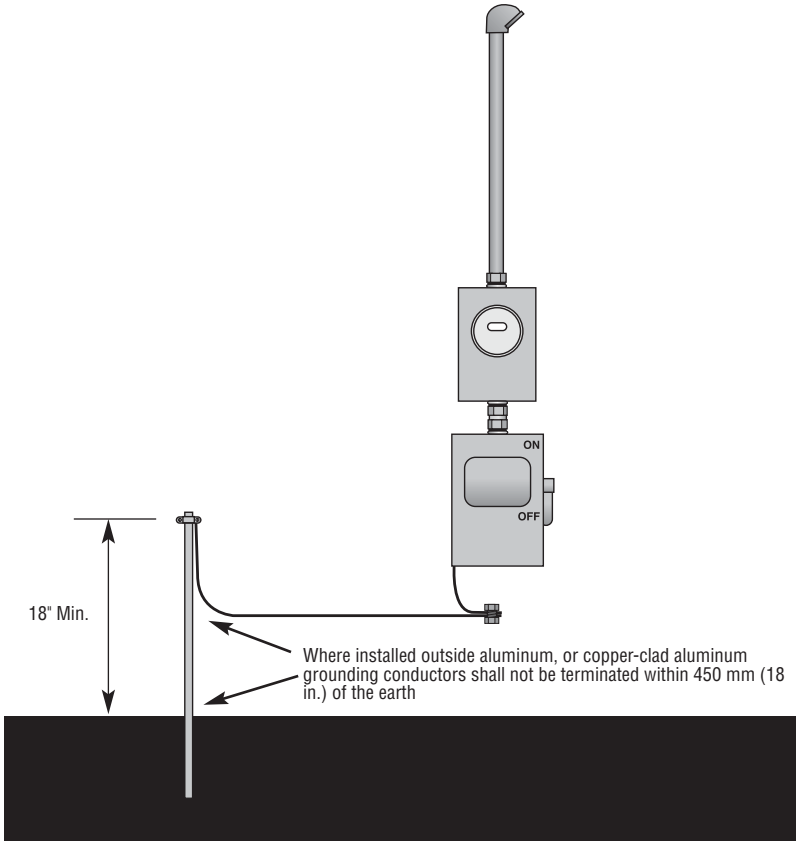
Article 250 – Grounding (Continued)

T&B PRODUCT: Grounding connectors

Section 250.64(A) Grounding Electrode Conductor Installation; Aluminum or Copper-Clad Aluminum Conductors.

Clarification was added for the proper installation requirements for aluminum grounding electrode conductors. Terminations must be made at locations greater than 18 inches from the earth.

ANALYSIS OF CHANGE: Previous wording could have been interpreted to mean Al or copper clad Al conductors could not be used. This was corrected as type USE conductor are suitable for directly buried grounding electrode conductors.


ON
OFF
18" Min.
Where installed outside aluminum, or copper-clad aluminum grounding conductors shall not be terminated within 450 mm (18 in.) of the earth

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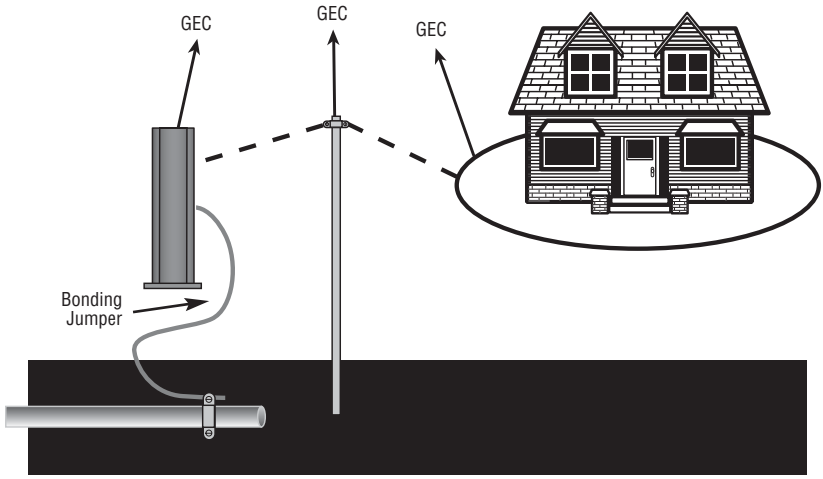
T&B PRODUCT: Grounding connectors

Section 250.64(F) Grounding Electrode Conductor Installation; To Electrode(s).

Clarification was added for the rules covering the routing of grounding electrode conductors. These conductors may be run to any convenient grounding electrode in the system or to one or more electrodes individually.

ANALYSIS OF CHANGE: This is a clarification change only.



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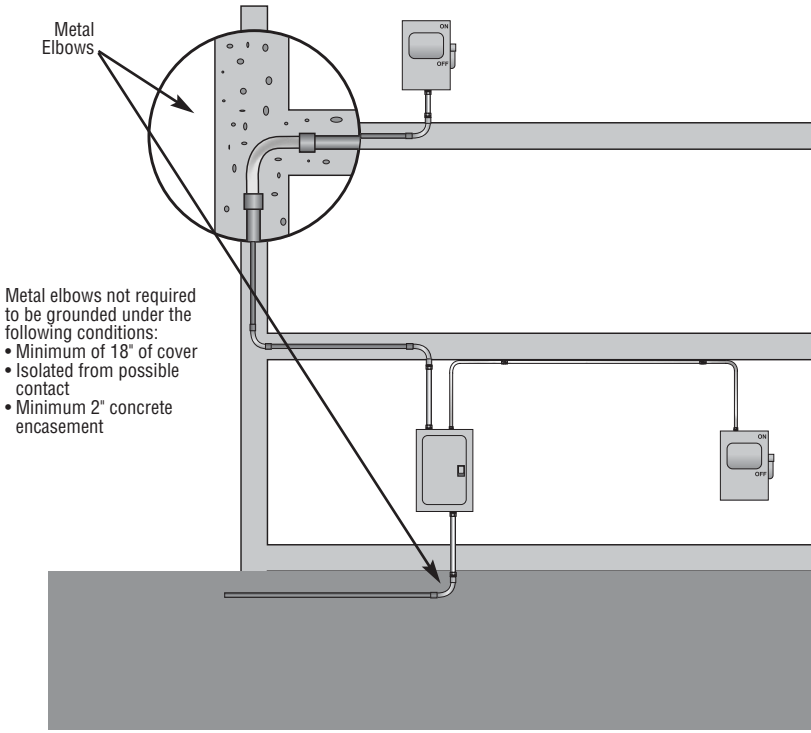
Article 250 – Grounding (Continued)

T&B PRODUCT: Fittings

Section 250.86 Exception No. 3 Other Conductor Enclosures and Raceways; Exception No. 3.

A new provision was added to the exception to include metal elbows installed in non-metallic raceway systems covered by a minimum of 2 inches of concrete.

ANALYSIS OF CHANGE: This change makes the existing practice of not providing a grounding conductor to a metal elbow in a non-metallic raceway when covered by concrete. The concrete provides a safety barrier.



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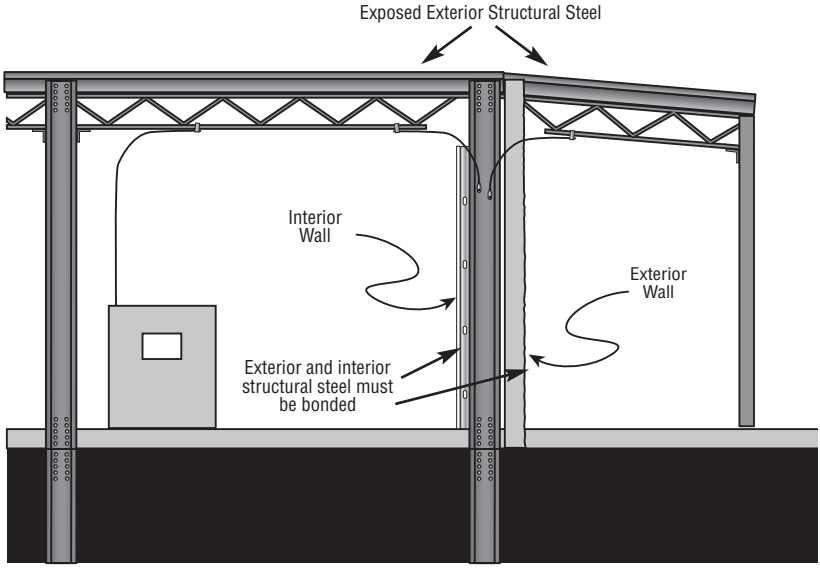
Article 250 - Grounding (Continued)

T&B PRODUCT: Grounding connectors

Section 250.104(C) Bonding of Piping Systems and Exposed Structural Steel; Structural Steel.

The term “interior”: was removed from this section of the code.

ANALYSIS OF CHANGE: Structural steel, both interior and exterior, must be bonded. The connection must be accessible.


Exposed Exterior Structural Steel
Interior Wall
Exterior Wall
Exterior and interior structural steel must be bonded

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Article 250 - Grounding (Continued)

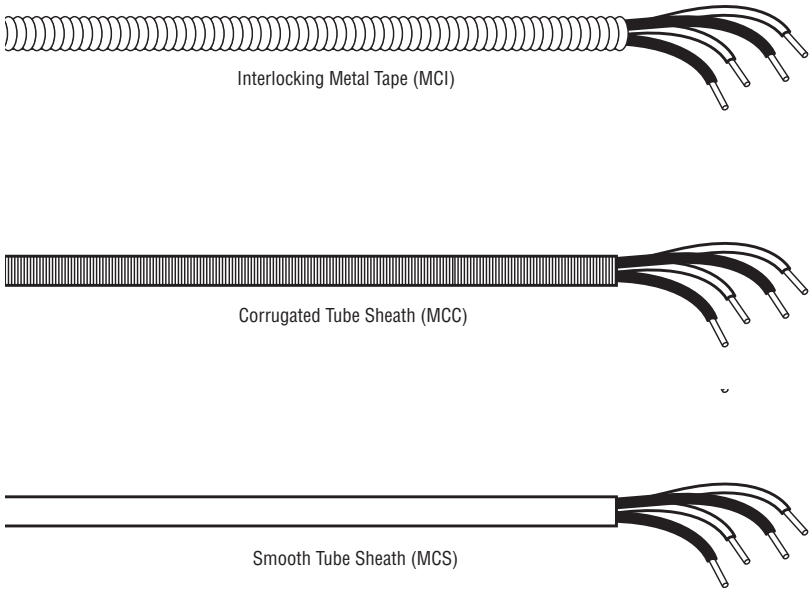
T&B PRODUCT: MC fittings

Section 250.118 Types of Equipment Grounding Conductors.

Clarification was added to the code for the proper use of MC type cable as an equipment grounding conductor.

ANALYSIS OF CHANGE: The change clarifies that the interlocking metal type MC cable alone is not suitable as an equipment grounding conductor.

Three Types of MC Cables



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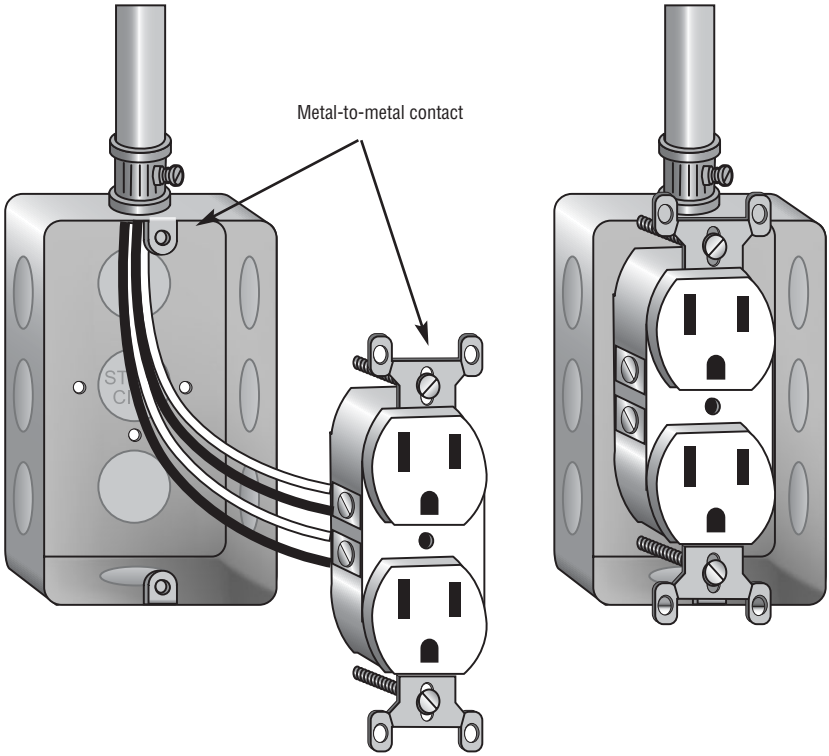
Article 250 - Grounding (Continued)

T&B PRODUCT: Metallic outlet boxes

Section 250.146 Connecting Receptacle Grounding Terminal to Box.

The words “or at” were removed from the section. Where the box is mounted on the surface, direct metal to metal contact between the device yoke and the box shall be permitted to ground the receptacle to the box.

ANALYSIS OF CHANGE: Previous code language allowed metal boxes mounted at the surface to use the direct metal to metal contact as the grounding means; avoiding the requirement for a jumper. With this change boxes mounted at the surface must now include a jumper.



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Article 300 - Wiring Methods

T&B PRODUCT: All products that are raceway system components

Section 300.1(C) and Table 300.1(C) Scope; Metric Designators and Trade Sizes.

Insertion of the metric designators into the wiring methods.

Table 300-1 (c). Metric Designator and Trade Sizes

Metric Designator	Trade Size
12	⅜
16	½
21	¾
27	1
35	1¼
41	1½
53	2
63	2½
78	3
91	3½
103	4
129	5
155	6

NOTE: The Trade Sizes and Metric Designators are for identification purposes only and do not relate to actual dimensions.

ANALYSIS OF CHANGE: Metric designators have appeared in the Code for three cycles now, and effective this Code cycle, the NEC will be principally metric. It's time to consider adding the metric designators to the products and to the catalogs.

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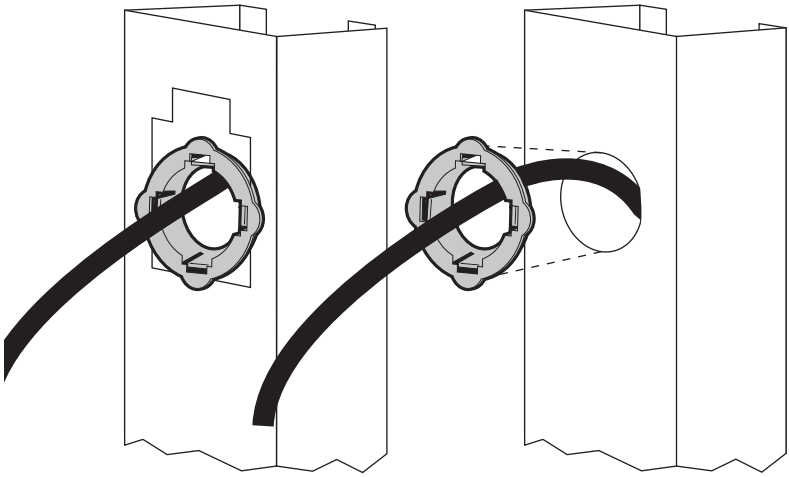
T&B PRODUCT: SB-1216-SC Metal Stud Grommet

Section 300.4(B)(1) Protection Against Physical Damage; Nonmetallic-Sheathed Cables and Electrical Nonmetallic Tubing Through Metal Framing Members; Nonmetallic Sheathed Cable.

Addition of the word “Listed” before the words “bushings’ and “grommets”.

ANALYSIS OF CHANGE: All grommets and bushings, regardless of material, used to protect installations of nonmetallic-sheathed cable passing through metal studs must now be listed. This will protect the nonmetallic-sheathed cable from damage on the sharp edges of punched or drilled holes.



• Steel City® products shown.

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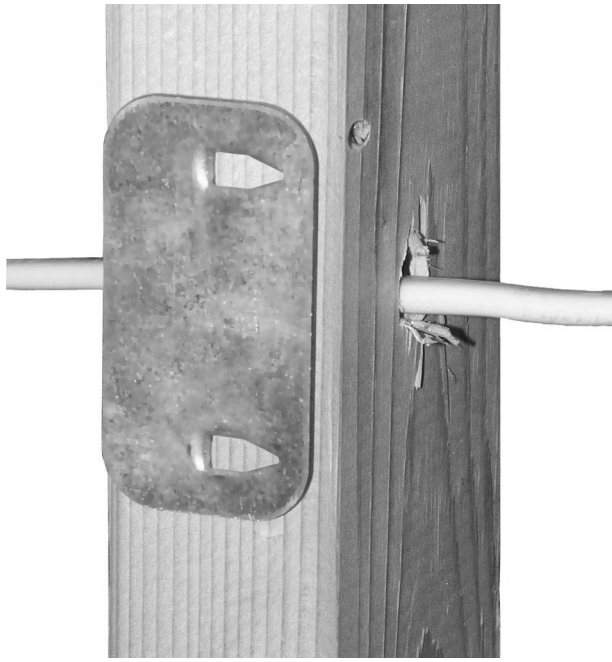
T&B PRODUCT: SB-1216-SC Metal Stud Grommet and CP-1 Cable Protector.

Section 300.4(D) Protection Against Physical Damage; Cables and Raceways Parallel to Framing Members.

Delete Exception No. 3 which excepted mobile homes and recreational vehicles from protecting cables or raceways where run parallel to the framing member.

ANALYSIS OF CHANGE: Mobile homes and recreational vehicles will now have to comply with the same rules in this section as other types of structures. This means cable protectors and the like will have to be used.



CP-1

• Steel City® products shown.

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Article 300 - Wiring Methods (Continued)

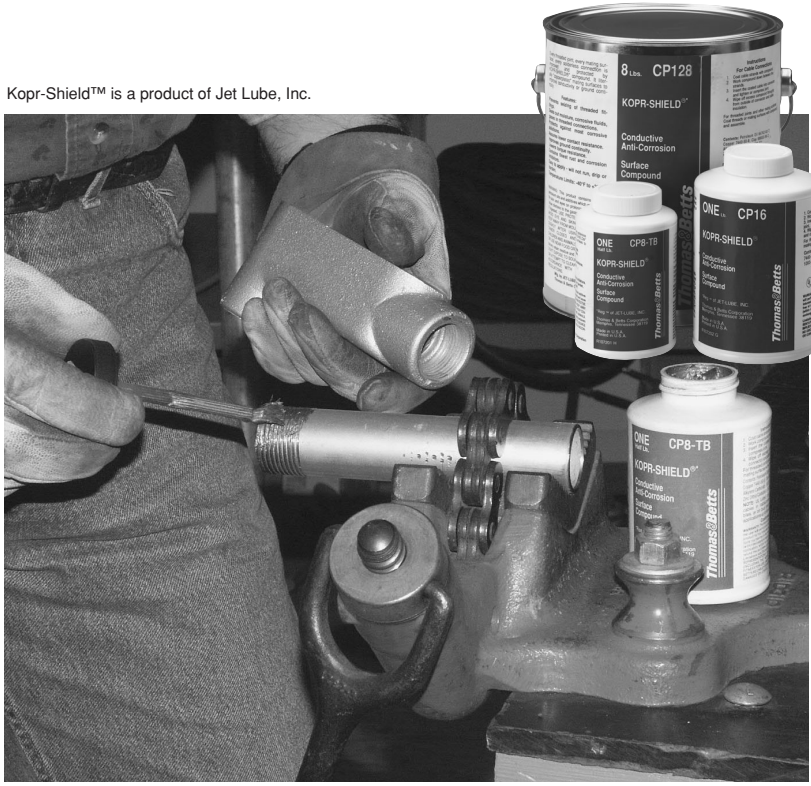
T&B PRODUCT: Kopr-Shield™

Section 300.6(A) Protection Against Corrosion; General.

Added the wording, “Where corrosion protection is necessary and the conduit is threaded in the field, the threads shall be coated with an approved electrically conductive, corrosion-resistant compound”.

ANALYSIS OF CHANGE: Factory threaded conduit has an applied corrosion protection. When the conduit is field cut then threaded, the threads need to be coated with an approved, electrically conductive, corrosion resistant compound so that the current carrying ability of the conduit is not compromised.

Kopr-Shield™ is a product of Jet Lube, Inc.



• Color-Keyed® products shown.

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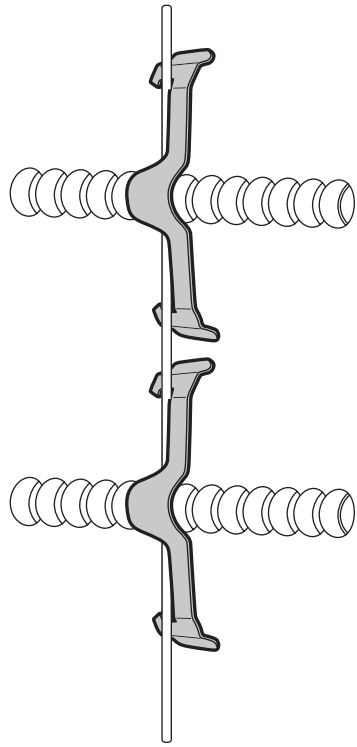
T&B PRODUCT: All Cable Supporting Means

Section 300.11(C) Securing and Supporting; Cables Not Used as Means of Support.

New wording has been added that will not allow cables to support other cables or raceways.

ANALYSIS OF CHANGE: Cables cannot be used to support other cables which means that additional cable support (straps, cable ties, etc.) must be used instead.



• Steel City® spring steel fastener products shown.

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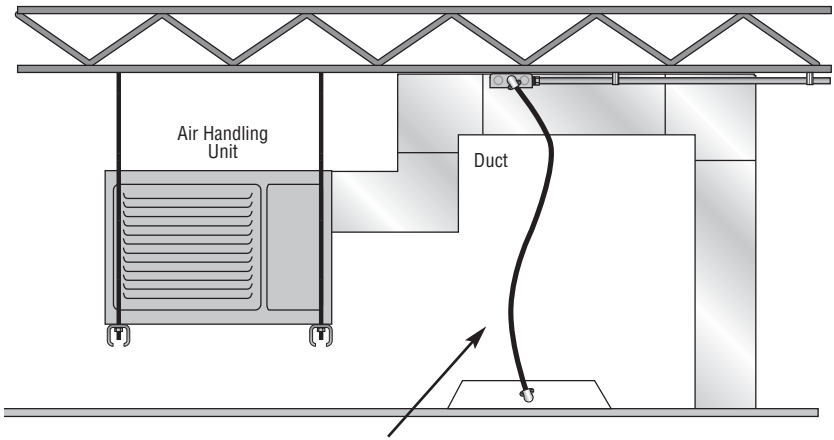
T&B PRODUCT: PVC Coated Conduit and Fittings

Section 300.22(B) Wiring in Ducts, Plenums, and Other Air-Handling Spaces; Ducts or Plenums Used for Environmental Air.

The current wording has been changed to add “without an overall nonmetallic covering” after the words “rigid metal conduit”.

ANALYSIS OF CHANGE: When the plenum is specifically designed for environmental air, raceways with a nonmetallic (PVC) covering are not permitted. Four foot lengths of Liquidtight Flexible Metal Conduit or Flexible Metal Conduit may be used in special circumstances to connect physically adjustable equipment.



Raceways with nonmetallic covering listed for use in such spaces

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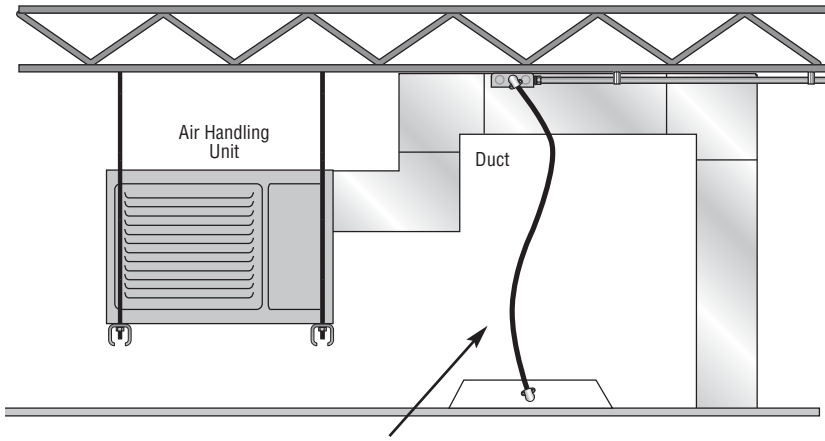
T&B PRODUCT: PVC Coated Conduit and Fittings

Section 300.22(C) Wiring in Ducts, Plenums, and Other Air-Handling Spaces; Other Space Used for Environmental Air.

The current wording has been changed to add “without an overall nonmetallic covering” after the words “rigid metal conduit”.

ANALYSIS OF CHANGE: When the plenum is specifically designed for environmental air, raceways with a nonmetallic (PVC) covering are not permitted.



Raceways with nonmetallic covering listed for use in such spaces

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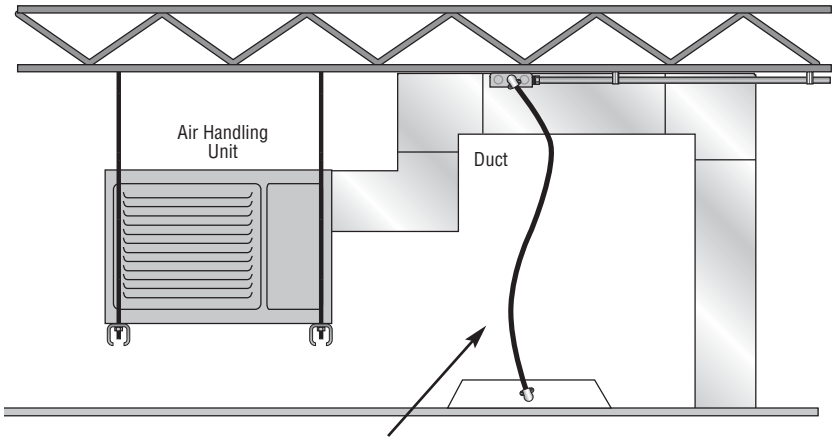
T&B PRODUCT: Liquidtight Flexible Metal Conduit (LFMC) Fittings.

Section 300.22(C)(1) Wiring in Ducts, Plenums and Other Air-Handling Spaces; Other Space Used for Environmental Air; Wiring Methods.

The exception that allowed LFMC in lengths not to exceed six feet in environmental air spaces has been deleted.

ANALYSIS OF CHANGE: Elimination of this nonmetallic (PVC) covered liquidtight conduit from use in plenums is consistent with earlier proposals. PVC Raceways and Raceways with a PVC coating are not permitted in plenums.



Raceways with nonmetallic covering listed for use in such spaces

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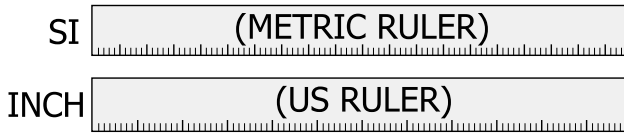
Article 310 – Conductors for General Wiring

T&B PRODUCT: Electrical Connectors

Section 310.11 (A)(4) Marking; Optional Marking of Wire Size; Required Information.

Table 8, referenced in the Fine Print Note (FPN), for the first time introduces metric (SI) units for standard AWG wire No. 18 through 4/0.

ANALYSIS OF CHANGE: A "soft" conversion, exact metric equivalent is used to avoid technical impact. Therefore, the SI units may not compare with conventional metric trade size wires recognized in other national or international standards.



Article 310 – Conductors for General Wiring (Continued)

T&B PRODUCT: Electrical Connectors

Section Table 310.17 Allowable Ampacities of Single-Insulated Conductors Rated 0 Through 2000 Volts in Free Air, Based on Ambient Air Temperature of 30°C (86°F).

All references to Type RH has been removed as Type RH thermoset insulated wires are no longer being produced.

ANALYSIS OF CHANGE: Any references to Type RH should be removed from catalog literature and catalog installation instructions. Types RHW and RHH remain.

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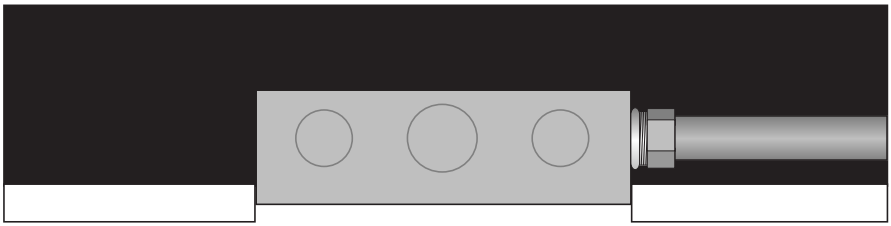
Article 314 - Outlet, Device, Pull, and Junction Boxes; Conduit Bodies, Fittings, and Manholes

T&B PRODUCT: Ceiling and Wall Boxes

Section 314.20 In Wall or Ceiling.

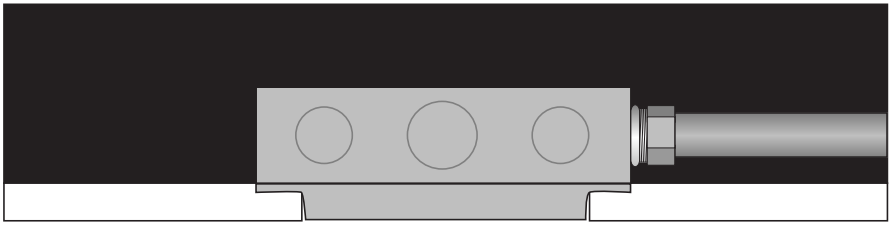
This change added gypsum and plaster to the other noncombustible surface materials listed so that boxes are set back not more than 1/4 inch from the finished surface.

ANALYSIS OF CHANGE: A more complete listing of noncombustible surface materials.



6.35mm (1/4 in.) set back permitted

Non-combustible Surface



Required to be flush

Combustible Surface

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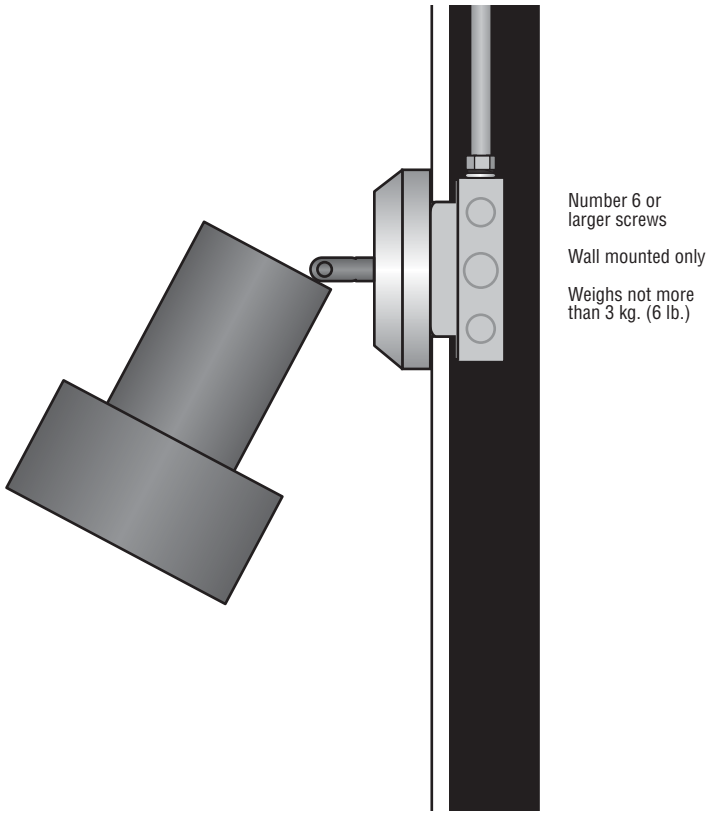
Article 314 - Outlet, Device, Pull, and Junction Boxes; Conduit Bodies, Fittings, and Manholes (Continued)

T&B PRODUCT: Enclosures

Section 314.27(A) Outlet Boxes; Boxes at Luminaire (Lighting Fixture) Outlets.

The Code previously stated that boxes used at lighting fixture outlets must be designed for the purpose, except that a fixture weighing not more than 6 lbs., and not exceeding 16 inches in any direction can be supported from other boxes as long as two #6 screws or larger are used to support the yoke. The new Code eliminates the 16 inch requirement.

ANALYSIS OF CHANGE: Any luminaire weighing six pounds or less can be supported from any box, including a device box, as long as two #6 screws or larger are used.



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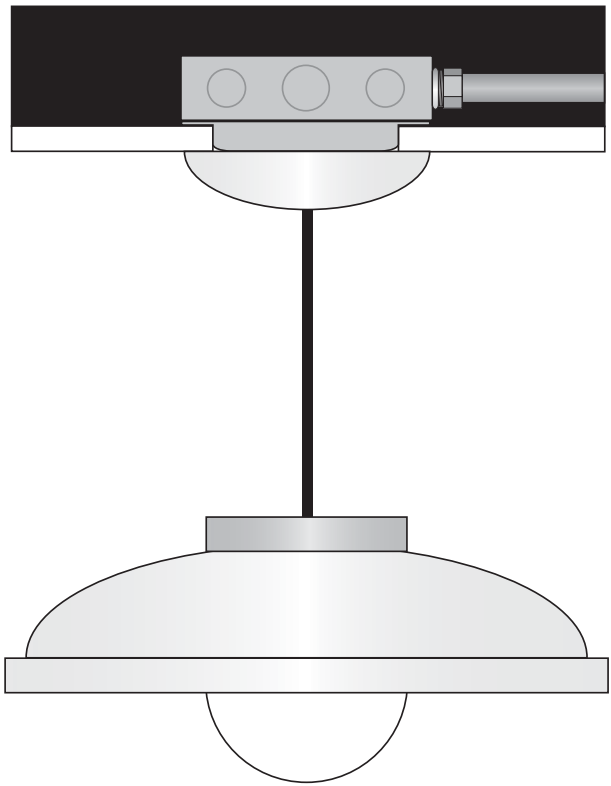
Article 314 - Outlet, Device, Pull, and Junction Boxes; Conduit Bodies; Fittings; and Manholes (Continued)

T&B PRODUCT: Ceiling and Wall Boxes

Section 314.27(B) Outlet Boxes; Maximum Luminaire (Fixture) Weight.

The luminaire weight has been added. Luminaires weighing 50 lbs. or less may be supported as outlet boxes or fittings installed as required by section 314.23. Luminaires weighing more than 50 lbs. must be supported independently of the outlet box unless the box has been listed for the weight to be supported.

ANALYSIS OF CHANGE: This wording was moved from section 410.16(A) of the 1999 Code because it is more appropriate to be located with the luminaire box requirements.



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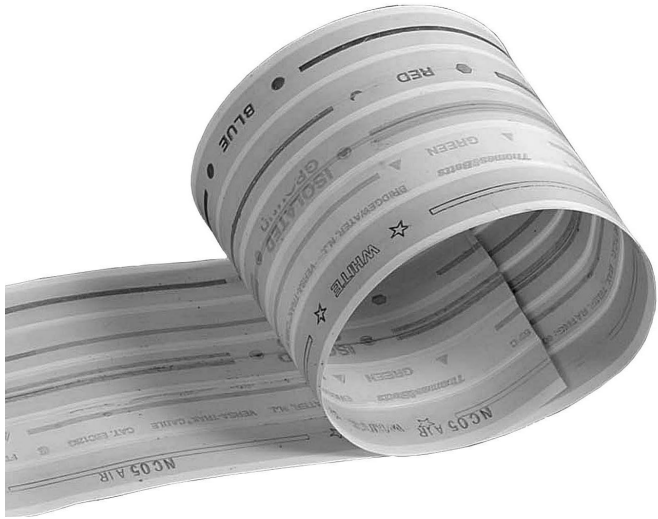
Article 322 - Flat Cable Assemblies: Type FC

T&B PRODUCT: Flat Cable

Section 322.100 Construction.

The construction requirements were changed to add five conductors with the wording “Flat cable assemblies shall consist of two, three, four or five conductors”.

ANALYSIS OF CHANGE: Allows five conductor flat cable to be manufactured and installed.



5 Conductor/3 Circuit

• T&B Versa-Trak® products shown.

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Article 322 - Flat Cable Assemblies: Type FC (Continued)

T&B PRODUCT: Flat Cable

Section 322.120 (B) Marking; Identification of Grounded Conductor.

The grounded conductor shall be identified throughout its length by means of a distinctive and durable white or gray marking.

ANALYSIS OF CHANGE: The term natural was removed as a specific type of gray coloring which is consistent with the removal of this term in other articles.

• T&B Versa-Trak® products shown.

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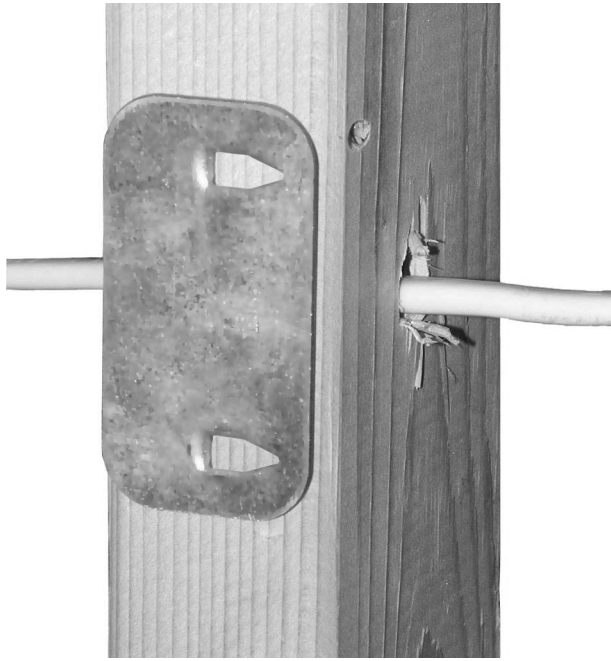
Article 330 - Metal-Clad Cable: Type MC

T&B PRODUCT: CP-1 Cable Protector

Section 330.17 Through or Parallel to Framing Members.

"Type MC cable shall be protected in accordance with 300.4 where installed through or parallel to framing members."

ANALYSIS OF CHANGE: There were previously no requirements for through or parallel to framing members. This change provides consistency with MI, AC and nonmetallic-sheathed cable.



CP-1

• Steel City® products shown.

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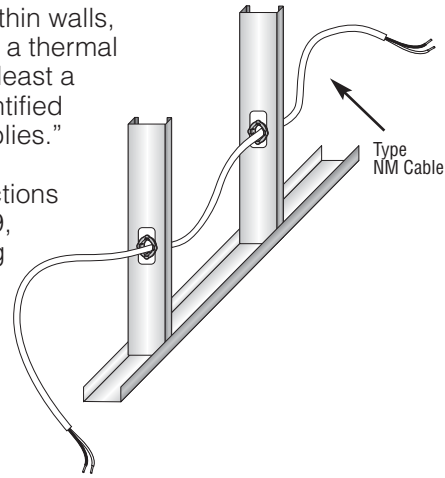
Article 334 - Nonmetallic-Sheathed Cable: Types NM, NMC, and NMS

T&B PRODUCT: Nonmetallic-Sheathed Cable Connectors

Section 334.10 Uses Permitted.

Rules covering the use of nonmetallic-sheathed cable in multifamily dwellings and buildings other than one- and two-family dwellings have been revised to read:
"(2) Multifamily dwellings permitted to be of Types III, IV and V construction except as prohibited in 334.12."

"(3) Other structures permitted to be of Types III, IV, and V construction except as prohibited in 334.12. Cables shall be concealed within walls, floors, or ceilings that provide a thermal barrier of material that has at least a 15-minute finish rating as identified in listings of fire-rated assemblies."



"FPN No. 1: Building constructions are defined in NFPA 220-1999, Standard on Types of Building Construction, or the applicable building code, or both."

"FPN No. 2: See Annex E for determination of building types [NFPA 220, Table 3-1]."

ANALYSIS OF CHANGE: 334.10(2) clarifies that Types NM, NMC and NMS cables are permitted to be installed in multifamily dwellings of Types III, IV and V construction except as prohibited in 334.12. 334.10(3) clarifies that Types NM, NMC and NMS cables are allowed to be installed in Types III, IV and V construction but must be concealed within walls, floors or ceilings that provide a 15-minute finish ratings.

Note: Although the Code indicates that nonmetallic-sheathed cable can be used in buildings that exceed three floors, many organizations have filed petitions against this change in the Uses Permitted. This is the most controversial issue in the 2002 Code and will remain up in the air until all the appeals have been heard.

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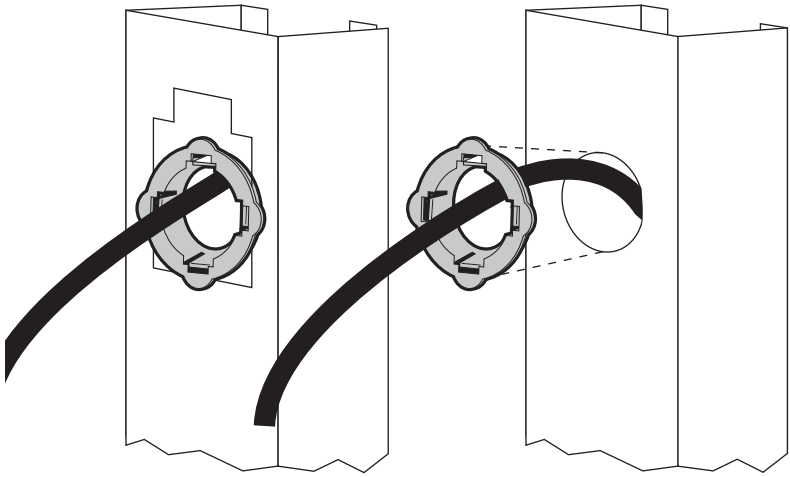
Article 334 - Nonmetallic-Sheathed Cable: Types NM, NMC, and NMS (Continued)

T&B PRODUCT: SB-1216-SC Metal Stud Grommet

Section 334.17 Through or Parallel to Framing Members.

"Types NM, NMC or NMS cable shall be protected in accordance with 300.4 where installed through or parallel to framing members. Grommets used as required in 300.4(B)(1) shall remain in place and be listed for the purpose of cable protection."

ANALYSIS OF CHANGE: For the protection against chafing of the cables by the edges of the metal stud.



• Steel City® products shown.

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Article 342 - Intermediate Metal Conduit: Type IMC

T&B PRODUCT: Rigid Conduit Fittings

Section 342.20 (A)(B) Size.

"(A) Minimum. IMC smaller than metric designator 16 (trade size 1/2) shall not be used."

"(B) Maximum. IMC larger than metric designator 103 (trade size 4) shall not be used."

ANALYSIS OF CHANGE: Metric designators were added as the principal size designation. This correlates with the addition of Table 300.4(C).

Metric Designator	Trade Size
12	⅜
16	½
21	¾
27	1
35	1¼
41	1½
53	2
63	2½
78	3
91	3½
103	4
129	5
155	6

NOTE: The Trade Sizes and Metric Designators are for identification purposes only and do not relate to actual dimensions.

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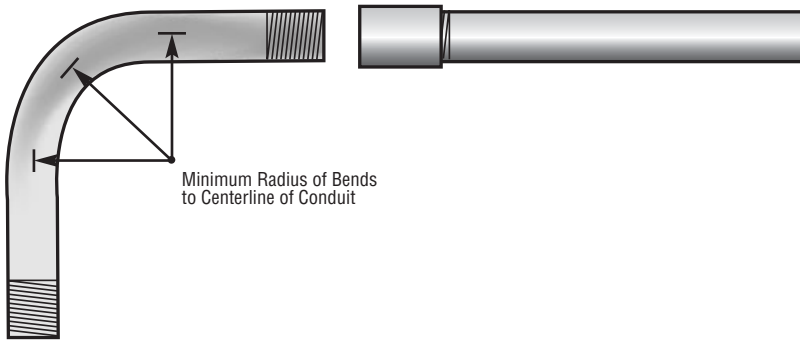
Article 342 - Intermediate Metal Conduit: Type IMC (Continued)

T&B PRODUCT: Rigid Conduit Benders

Section 342.24 Bends – How Made.

"The radius of the curve of any field bend to the centerline of the conduit shall not be less than indicated in Table 344.24."

ANALYSIS OF CHANGE: This change was to correlate with other circular raceway articles. Where some articles measured to the centerline and others measured to the inside, all articles now reference Table 344.24.



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Article 342 - Intermediate Metal Conduit: Type IMC (Continued)

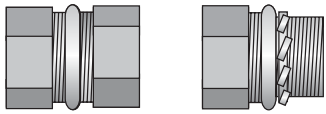
T&B PRODUCT: Threadless Rigid Couplings and Connectors.

Section 342.42(A) Couplings and Connectors; Threadless.

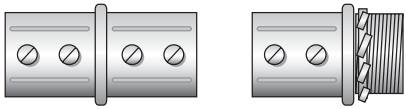
"Threadless couplings and connectors shall not be used on threaded conduit ends unless listed for the purpose."

ANALYSIS OF CHANGE: This change is made to assure the integrity of the connection. If a threadless fitting is used on the threaded end of IMC, it must be listed for the purpose.

Compression



Set Screw



Intermediate metal conduit with threads

Threadless fittings required to be listed for use with threaded conduit if installed on threaded conduit.

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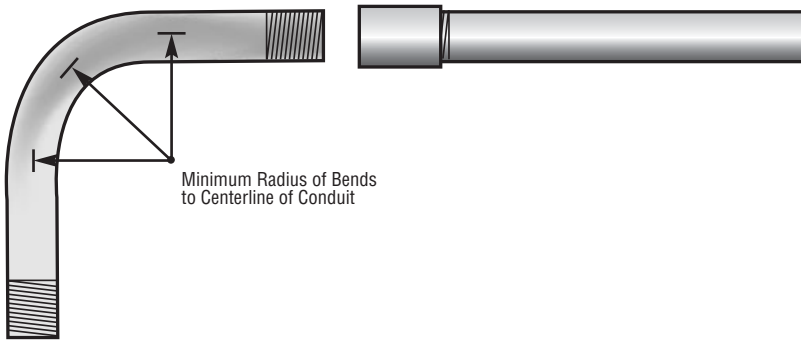
Article 344 - Rigid Metal Conduit: Type RMC

T&B PRODUCT: Rigid Metal Conduit and Rigid Metal Conduit Benders.

Section 344.24 Bends – How Made.

"The radius of the curve of any field bend to the centerline of the conduit shall not be less that indicate in Table 344.24."

ANALYSIS OF CHANGE: This change was to correlate with other circular raceway articles. Where some articles measured to the centerline and others measured to the inside, all articles now reference Table 344.24.



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Article 344 - Rigid Metal Conduit: Type RMC (Continued)

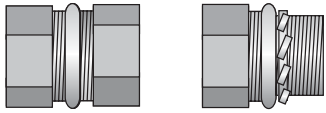
T&B PRODUCT: Threadless Rigid Couplings and Connectors.

Section 344.42(A) Couplings and Connectors; Threadless.

"Threadless couplings and connectors shall not be used on threaded conduit ends unless listed for the purpose."

ANALYSIS OF CHANGE: This change is made to assure the integrity of the connection. If a threadless fitting is used on the threaded end of RMC, it must be listed for the purpose.

Compression



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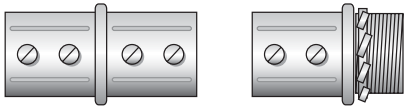

Intermediate metal conduit with threads

Threadless fittings required to be listed for use with threaded conduit if installed on threaded conduit.

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Article 350 - Liquidtight Flexible Metal Conduit: Type LFMC

T&B PRODUCT: Liquidtight Flexible Metal Conduit Fittings

Section All.

"This article covers the use, installation, and construction specifications for liquidtight flexible metal conduit (LFMC) and associated fittings."

ANALYSIS OF CHANGE: Article 351 of the 1999 Code covered both metal and nonmetallic liquidtight conduit. In an effort to make the Code more user friendly, this article was split into two articles, 350 and 356.

5331

5351

• T&B Conduit Fittings® products shown.

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Article 350 - Liquidtight Flexible Metal Conduit: Type LFMC (Continued)

T&B PRODUCT: Liquidtight Flexible Metal Conduit Fittings

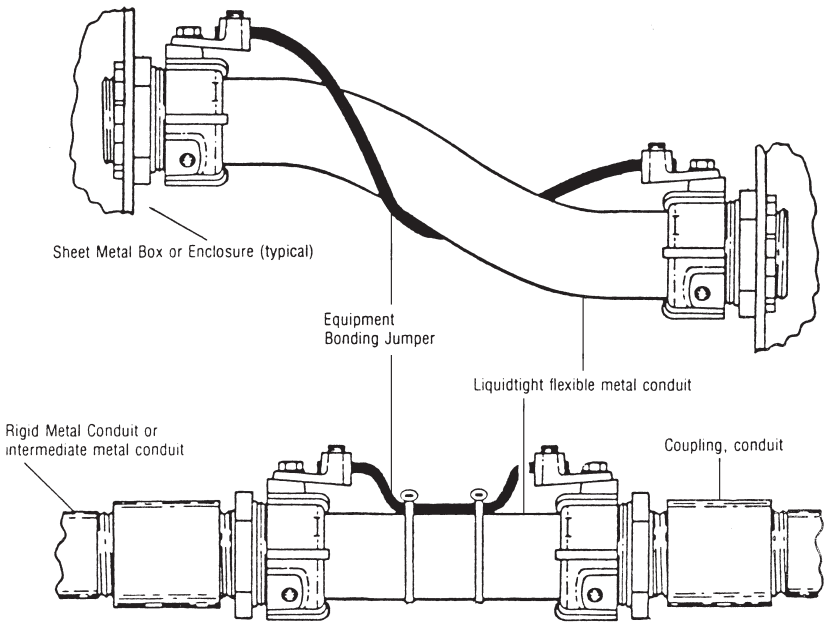
Section 350.60 Grounding and Bonding.

"Where used to connect equipment where flexibility is required, an equipment grounding conductor shall be installed."

"Where required or installed, equipment grounding conductors shall be installed in accordance with 250.134(B)."

"Where required or installed, equipment bonding jumpers shall be installed in accordance with 250.102."

ANALYSIS OF CHANGE: To provide a clear distinction between the rules for grounding and bonding.



Shown: T&B Fittings Series 5331GR Grounding Liquidtight Connector

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Article 356 - Liquidtight Flexible Nonmetallic Conduit: Type LFNC

T&B PRODUCT: Liquidtight Flexible Nonmetallic Conduit and associated Fittings

Section All.

"This article covers the use, installation, and construction specifications for liquidtight flexible nonmetallic conduit (LFNC) and associated fittings."

ANALYSIS OF CHANGE: Article 351 of the 1999 Code covered both metal and nonmetallic liquidtight conduit. In an effort to make the Code more user friendly, this article was split into two articles, 350 and 356.

• T&B Conduit Fittings® products shown.

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Article 356 - Liquidtight Flexible Nonmetallic Conduit: Type LFNC (Continued)

T&B PRODUCT: Liquidtight Flexible Nonmetallic Conduit

Section 356.120 Marking.

"LFNC shall be marked at least every 600 mm (2 ft) in accordance with 110.21. The marking shall include a type designation in accordance with 356.2 and the trade size. Conduit that is intended for outdoor use or direct burial shall be marked."

"The type, size and quantity of conductors used in prewired manufactured assemblies shall be identified by means of a printed tag or label attached to each end of the manufactured assembly and either the carton, coil, or reel. The enclosed conductors shall be marked in accordance with 310.11."

ANALYSIS OF CHANGE: The above marking requirements were not previously stated in the Code. This addition will bring consistency to LFNC and LFMC.

• T&B Conduit Fittings® products shown.

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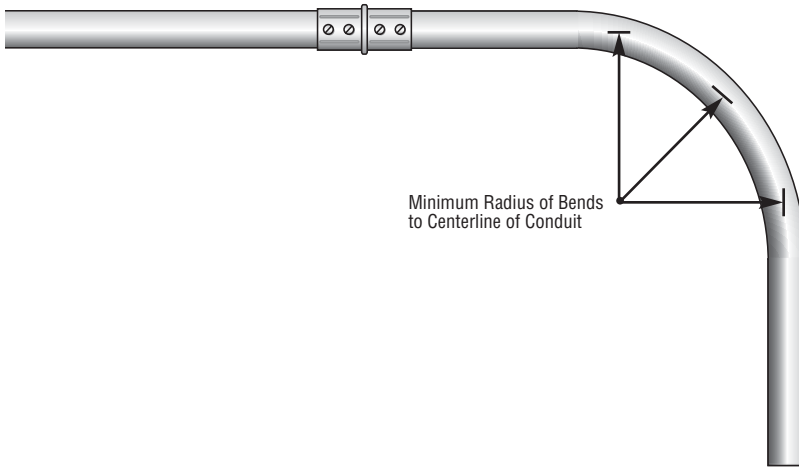
Article 358 - Electrical Metallic Tubing: Type EMT

T&B PRODUCT: EMT Conduit Benders

Section 358.24 Bends – How Made.

"The radius of the curve of any field bend to the centerline of the tubing shall not be less than indicated in Table 344.24."

ANALYSIS OF CHANGE: This change was to correlate with other circular raceway articles. Where some articles measured to the centerline and others measured to the inside, all articles now reference Table 344.24.



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Article 362 - Electrical Nonmetallic Tubing: Type ENT

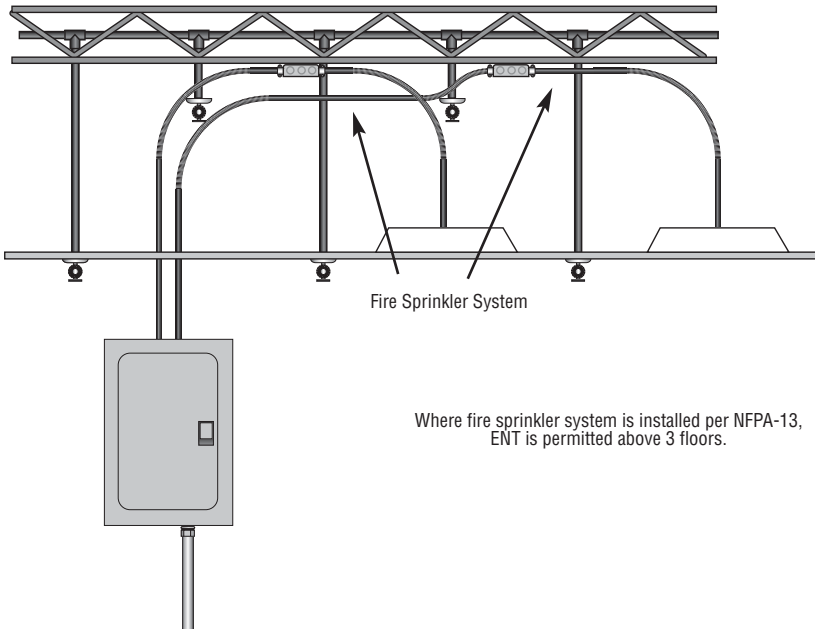
T&B PRODUCT: None – Information only

Section 362.10(2) Exception Uses Permitted; Exception.

"(2) In any building exceeding three floors above grade, ENT shall be concealed within walls, floors, and ceilings where the walls, floors, and ceilings provide a thermal barrier of material that has at least a 15-minute finish rating as identified in listings of fire-rated assemblies. The 15-minute finish-rated thermal barrier shall be permitted to be used for combustible walls, floors, and ceilings."

"Exception: Where a fire sprinkler system(s) is installed in accordance with NFPA 13-1999, Standard for the Installation of Sprinkler Systems, on all floors, ENT is permitted to be used within walls, floors, and ceilings, exposed or concealed, in buildings exceeding three floors above grade."

ANALYSIS OF CHANGE: ENT can now be installed in the walls, floors and ceilings of buildings above three floors, exposed or concealed, as long as the building is protected by a sprinkler system installed in accordance with NFPA-13.



Where fire sprinkler system is installed per NFPA-13, ENT is permitted above 3 floors.

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Article 362 - Electrical Nonmetallic Tubing: Type ENT (Continued)

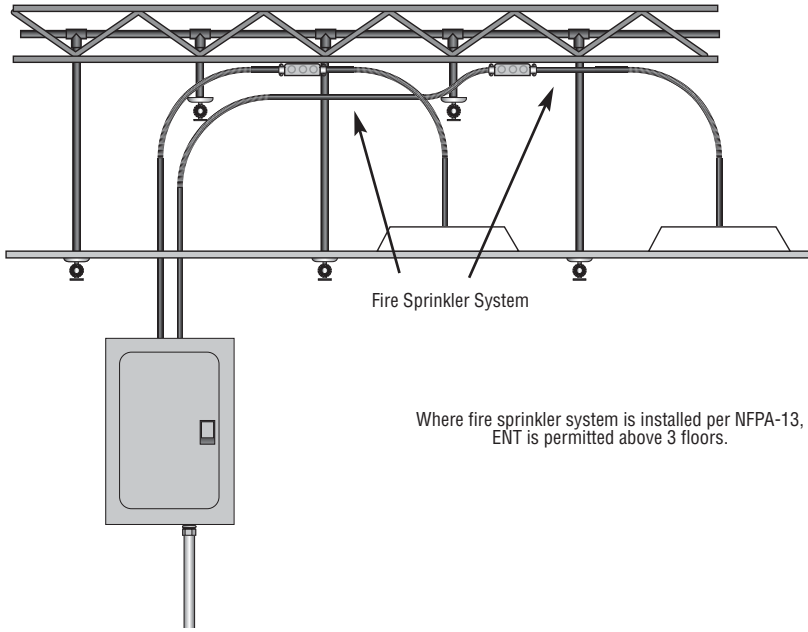
T&B PRODUCT: None – Information only

Section 362.10(5) Exception Uses Permitted; Exception.

"(5) Above suspended ceilings where the suspended ceilings provide a thermal barrier of material that has at least a 15-minute finish rating as identified in listings of fire-rated assemblies, except as permitted in 362.10(1)(a)."

"Exception: Where a fire sprinkler system(s) is installed in accordance with NFPA 13-1999, Standard for the Installation of Sprinkler Systems, on all floors, ENT is permitted to be used above suspended ceilings without a 15-minute-finish-rated thermal barrier material."

ANALYSIS OF CHANGE: ENT can now be installed above suspended ceilings, on all floors, without a thermal barrier, as long as a sprinkler system is installed in accordance with NFPA 13.



Where fire sprinkler system is installed per NFPA-13, ENT is permitted above 3 floors.

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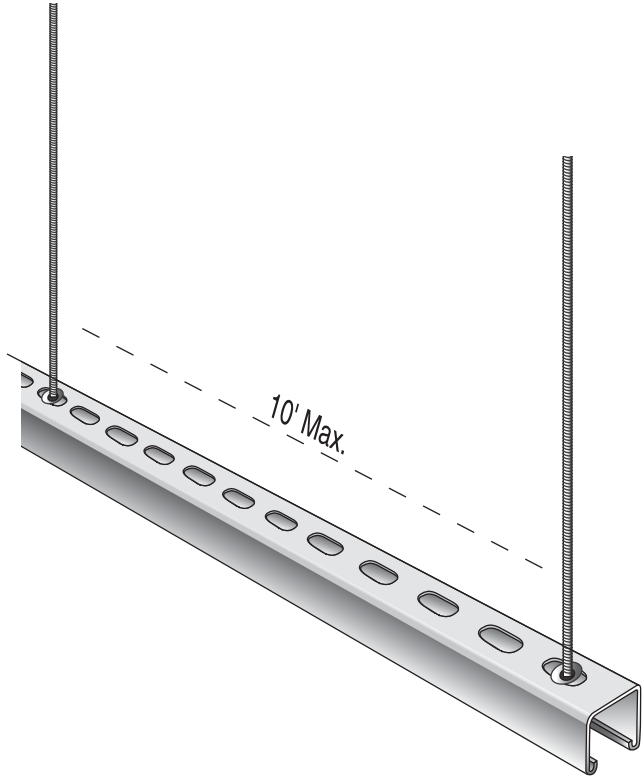
Article 384 - Strut-Type Channel Raceway

T&B PRODUCT: Kindorf and Superstrut

Section 384.30(B) Securing and Supporting; Suspension Mount.

"(B) Suspension Mount. Strut-type channel raceways shall be permitted to be suspension mounted in air with approved appropriate methods designed for the purpose at intervals not to exceed 3 m (10 ft) and within 900 mm (3 ft) of channel raceway termination and ends."

ANALYSIS OF CHANGE: Adds a requirement for suspension at the termination of strut-type channel raceways. This change clarifies the support requirements for Kindorf and Superstrut raceway products. Previously, the support requirements were vague, but this proposal will add consistency with conduit raceways.



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Article 384 - Strut-Type Channel Raceway (Continued)

T&B PRODUCT: Kindorf and Superstrut

Section 384.100(B) Construction; Corrosion Protection.

"(B) Corrosion Protection. Steel raceways and accessories shall be protected against corrosion by galvanizing or an organic coating."

ANALYSIS OF CHANGE: Previously specified PVC-coated and enamel. This was revised to organic since both of these are organic and other organic coatings such as powder are approved as well.

• Kindorf® framing channel products shown.

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Article 386 - Surface Metal Raceways

T&B PRODUCT: Surface Metal Raceways

Section All.

"This article covers the use, installation, and construction specifications for surface metal raceways and associated fittings."

ANALYSIS OF CHANGE: Article 352 of the 1999 Code covered both metal and nonmetallic surface raceway. In an effort to make the Code more user friendly, this article was split into two articles, 386 and 388.

• T&B Surface Raceway products shown.

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Article 388 - Surface Nonmetallic Raceways

T&B PRODUCT: Surface Nonmetallic Raceways

Section All.

"This article covers the use, installation and construction specifications for surface nonmetallic raceways and associated fittings."

ANALYSIS OF CHANGE: Article 352 of the 1999 code covered both metal and nonmetallic surface raceway. In an effort to make the code more user friendly, this article was split into two articles, 386 and 388.

• T&B Surface Raceway products shown.

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Article 388 - Surface Nonmetallic Raceways (Continued)

T&B PRODUCT: Surface Nonmetallic Raceways

Section 388.70 Combination Raceways.

"Combination Raceways. When combination surface raceways are used both for signaling and for lighting and power circuits, the different systems shall be run in separate compartments identified by sharply contrasting colors of the interior finish."

ANALYSIS OF CHANGE: Where surface nonmetallic raceway is utilized with separate compartments, the relative position of the compartments need not be maintained. Fittings can be designed with tunnels, etc. that can alter the position of the wiring relative to the entire installation.

• T&B Surface Raceway products shown.

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Article 392 - Cable Trays

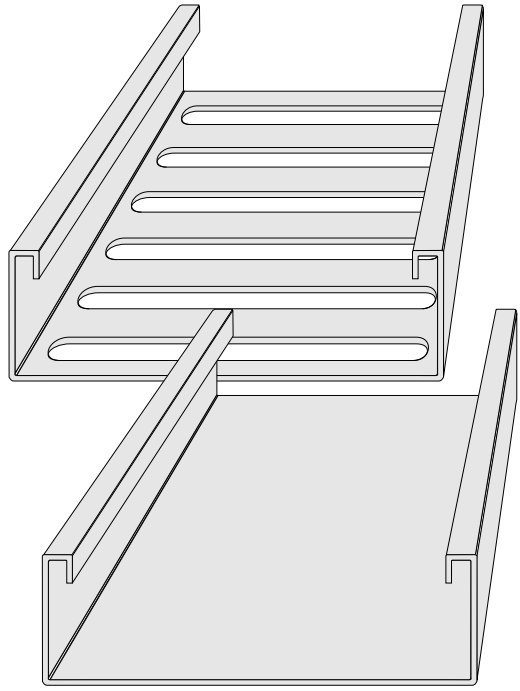
T&B PRODUCT: Cable Tray

Section 392.1 FPN Scope; FPN.

"Scope. This article covers cable tray systems, including ladder, ventilated trough, ventilated channel, solid bottom, and other similar structures."

"FPN: For further information on cable trays, see NEMA-VE 1, 1998, Metal Cable Tray Systems; NEMA-VE 2-1996, Metal Cable Tray Installation Guidelines; and NEMA-FG 1-1998, Nonmetallic Cable Tray Systems."

ANALYSIS OF CHANGE: The reference to the NEMA documents will allow the user to access additional information regarding construction and installation of cable tray.



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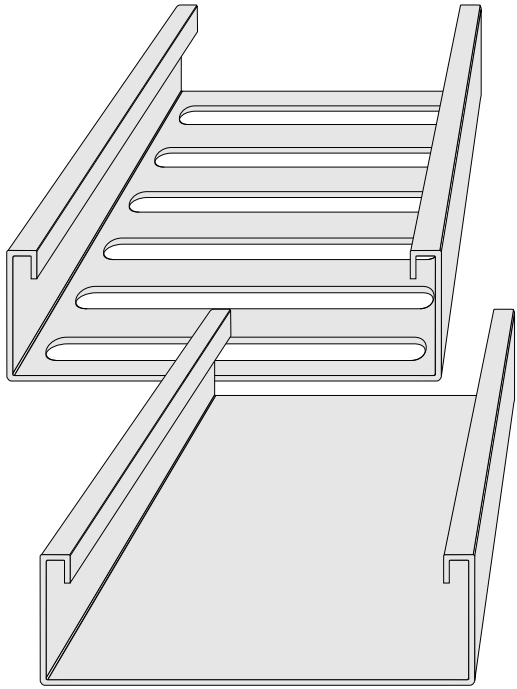
T&B PRODUCT: Cable Tray

Section 392.3(B) Uses Permitted; In Industrial Establishments.

"(B) In Industrial Establishments. The wiring methods in Table 392.3(A) shall be permitted to be used in any industrial establishment under the conditions described in their respective articles. In industrial establishments only, where conditions of maintenance and supervision ensure that only qualified persons service the installed cable tray system, any of the cables in 392.3(B)(1) and (2) shall be permitted to be installed in ladder, ventilated trough, solid bottom, or ventilated channel cable trays."

ANALYSIS OF CHANGE: Solid bottom cable tray was added to the list of cable tray products that can be used in industrial establishments.



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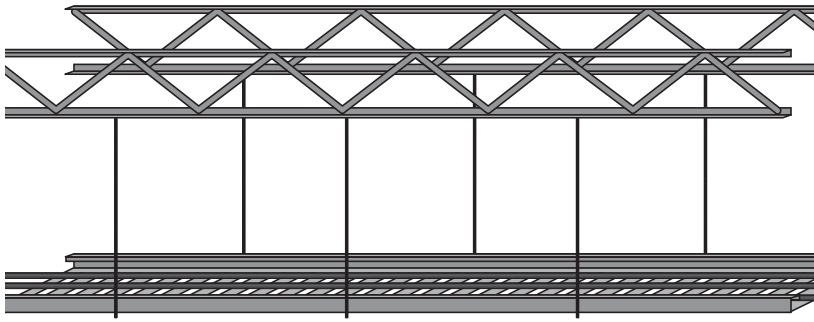
T&B PRODUCT: Cable Tray

Section 392.6(C) Installation; Supports.

"(C) Supports. Supports shall be provided to prevent stress on cables where they enter raceways or other enclosures from cable tray systems."

"Cable trays shall be supported at intervals in accordance with the installation instructions."

ANALYSIS OF CHANGE: This change helps to ensure that the cable tray system is installed properly and in a safe manner. The reference to installation instructions can be accomplished through NEMA-VE 2 or by going directly to the manufacturer.



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Article 392 - Cable Trays (Continued)

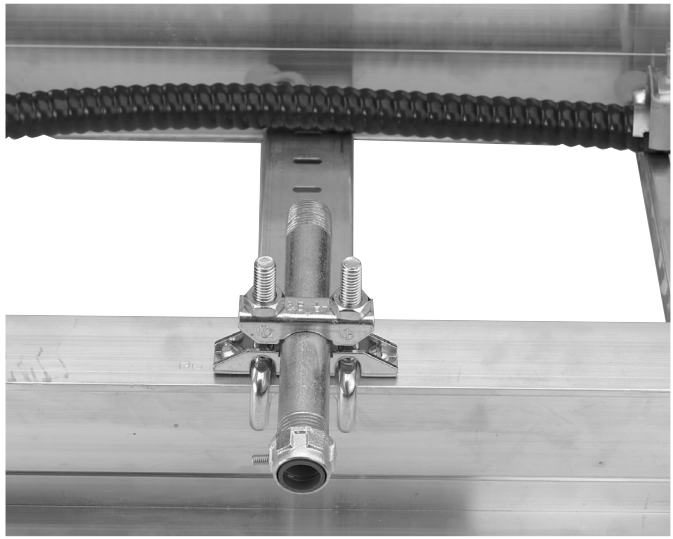
T&B PRODUCT: Cable Tray

Section 392.6(J) Installation, Raceways, Cables, Boxes, and Conduit Bodies Supported from Cable Tray Systems.

"For boxes or bodies attached to the bottom or side of a cable tray system, fastening and supporting shall be in accordance with the requirements of 314.23."

ANALYSIS OF CHANGE: This revision removed the word "outlet" from the title and the body of the requirement because any box can be supported from cable tray. It also added the words "conduit bodies" because a conduit body is often utilized as part of a conduit system.

It should be noted that this rule pertains only to industrial establishments where conditions of maintenance and supervision ensure that only qualified persons service the installation.



• T&B Cable Tray products shown.

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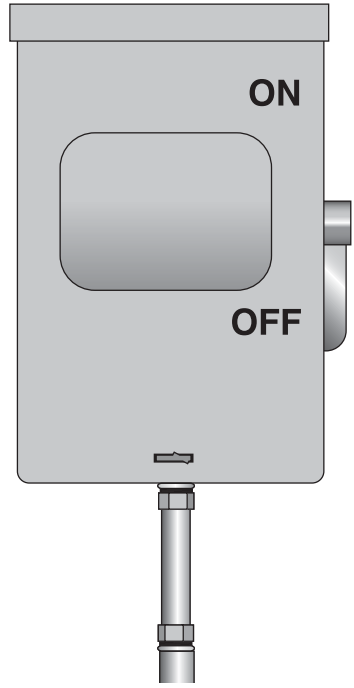
Article 404 - Switches

T&B PRODUCT: Switches

Section 404.6(C) Position and Connection of Switches; Connection of Switches.

"(C) Connection of Switches. Single-throw knife switches and switches with butt contacts shall be connected so that their blades are de-energized when the switch is in the open position. Bolted pressure contact switches shall have barriers that prevent inadvertent contact with energized blades. Single-throw knife switches, bolted pressure contact switches, molded-case switches, switches with butt contacts, and circuit breakers used as switches shall be connected so that the terminals supplying the load are de-energized when the switch is in the open position."

ANALYSIS OF CHANGE: This change will allow the workers to take voltage readings, change fuses, and make connections to load terminals in a safe manner. This change will permit bolted pressure contact switches to have barriers that will prevent accidental contact with energized blades.



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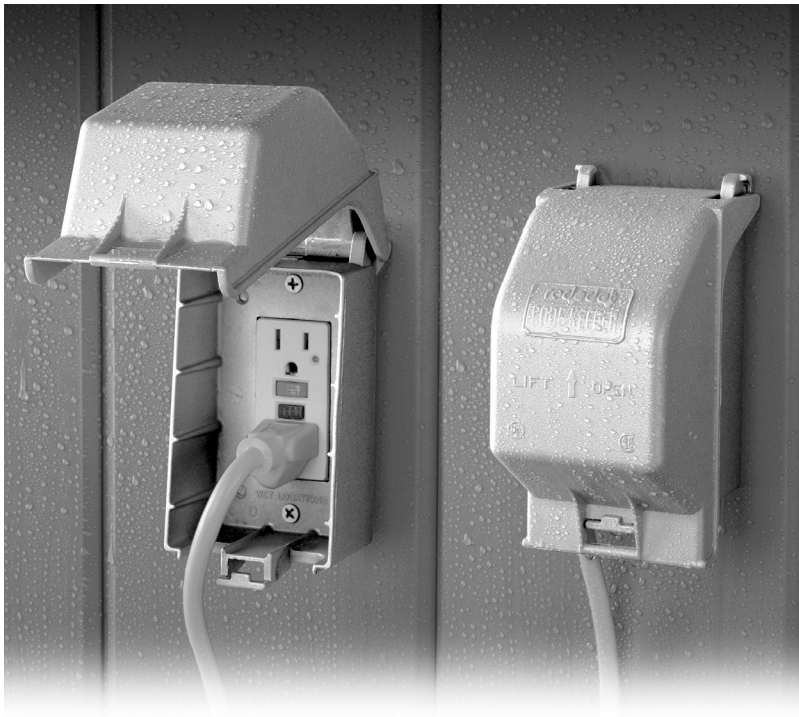
Article 406 - Receptacles, Cord Connectors, and Attachment Plugs (Caps)

T&B PRODUCT: Receptacle covers

Section New article.

This new article was created to place all receptacle, cord connector, and attachment plug requirements into one article

ANALYSIS OF CHANGE: This change creates a more user-friendly code and allows for easier identification of requirements for these products.



• Red•Dot® weatherproof products shown.

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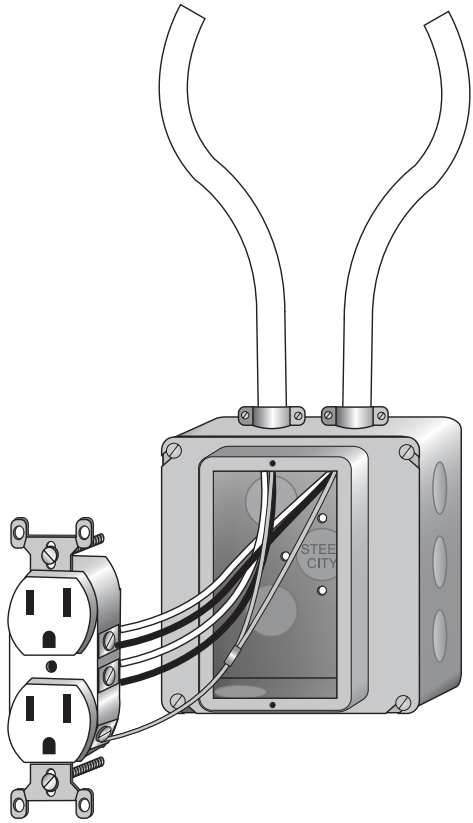
Article 406 - Receptacles, Cord Connectors, and Attachment Plugs (Caps) (Continued)

T&B PRODUCT: Pin & Sleeve Receptacles

Section 406.3 General Installation Requirements.

Requirements for Receptacles from the 1999 NEC, Section 210.7, have been relocated to new Section 406.3.

ANALYSIS OF CHANGE: The requirements remain the same but changes to literature and product instruction sheets that reference the NEC Sections may need to be revised.



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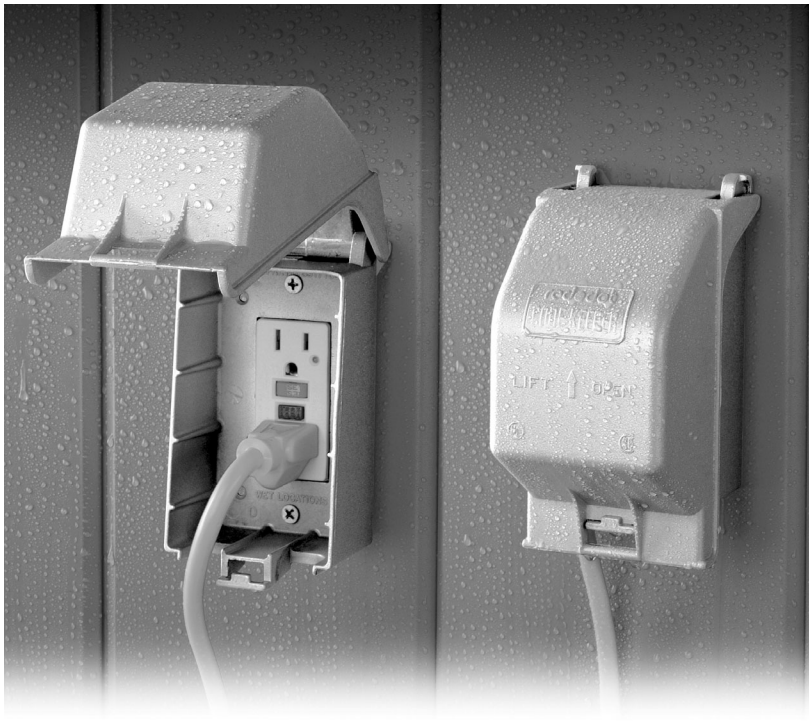
Article 406 - Receptacles, Cord Connectors, and Attachment Plugs (Caps) (Continued)

T&B PRODUCT: Weatherproof while in use covers

Section 406.8(B) Receptacles in Damp or Wet Locations; Wet Location

15 and 20 amp, 125 and 250 volt receptacles installed outdoors in a wet location shall have an enclosure that is weatherproof whether or not the attachment plug cap is inserted.

ANALYSIS OF CHANGE: This change will require the use of weatherproof while in use covers in outdoors, wet locations. This will shift product sales from the flip-cap style covers to the weatherproof while in use style.



• Red•Dot® weatherproof products shown.

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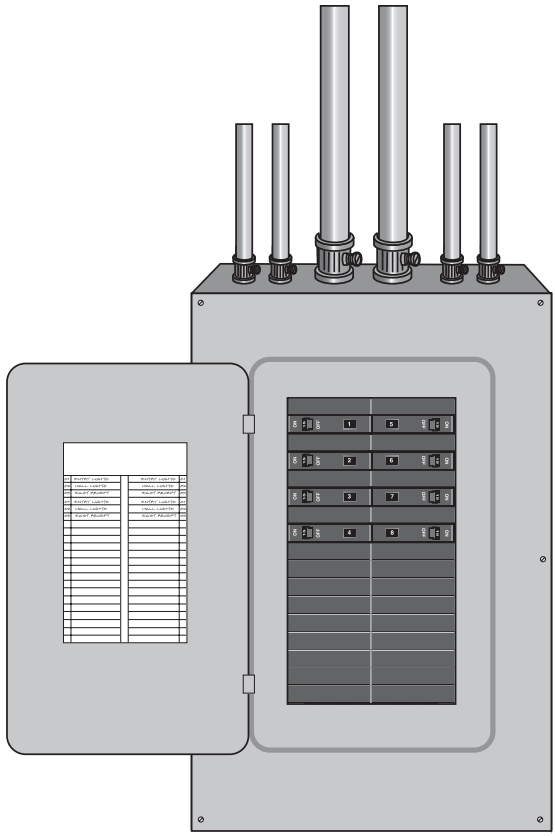
Article 408 - Switchboards and Panelboards

T&B PRODUCT: Panelboards

Section 408.4 Circuit Directory

"**Circuit Directory.** All circuits and circuit modifications shall legibly identified as to purpose or use on a circuit directory located on the face or inside of the panel door in the case of a panelboard, and at each switch on a switchboard."

ANALYSIS OF CHANGE: The instructions regarding identification of circuits will be more clear.



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Article 410 - Luminaires (Lighting Fixtures)

T&B PRODUCT: Luminaires

Section Entire Code

The words " lighting fixture" has been replaced with "luminaire (lighting fixture)" throughout the code.

ANALYSIS OF CHANGE: Luminaire is the word used in IEC standards. The word in now in the bi-national (US and Canada) safety standard. Look for the "(lighting fixture)" words to be deleted in 2005.

K440 shown

K822BR shown

• Red•Dot® weatherproof products shown.

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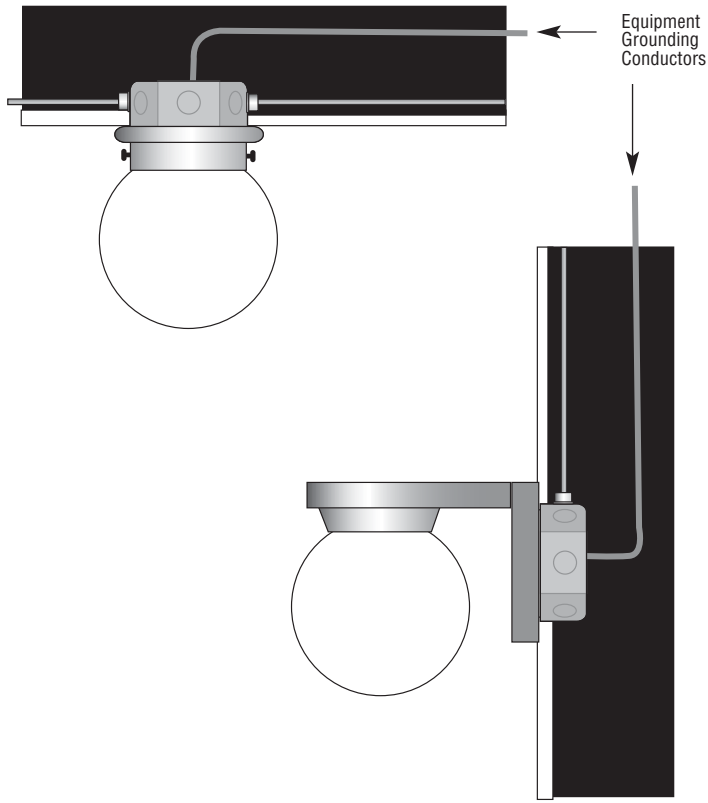
T&B PRODUCT: Luminaires

Section 410.18(B) Exposed Luminaire (Fixture) Parts; Made of Insulating Material.

When an equipment grounding conductor is not available for a luminaire replacement, the grounding conductor from an outlet may be used.

ANALYSIS OF CHANGE: Previous code language only allowed luminaires made of insulating materials to be used in this replacements. This change will allow metal luminaires to be used in these applications.



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Article 430 - Motors/Controllers

T&B PRODUCT: Molded Case Switches

Section 430.83(A)(3) Ratings; General; Molded Case Switches.

A molded case switch rated in amperes shall be permitted as a controller for all motors.

ANALYSIS OF CHANGE: This change includes molded case switches in this application. Since circuit breakers were allowed, molded case switches can perform this same function.

• T&B Distribution Equipment products shown.

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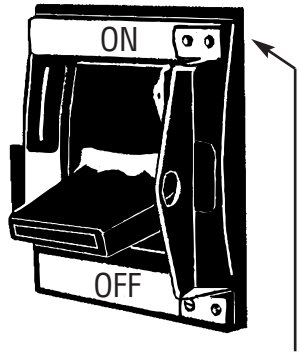
T&B PRODUCT: Circuit Breakers / Switches

Section 430.102(B) Location; Motor.

Where a motor disconnect is not within sight of the equipment, the lock-out feature shall be on the switch or breaker.

ANALYSIS OF CHANGE: Previously, the lockout feature could have been part of the enclosure.



The Lock-Off Device to be Permanently Mounted to the Switch or Circuit Breaker

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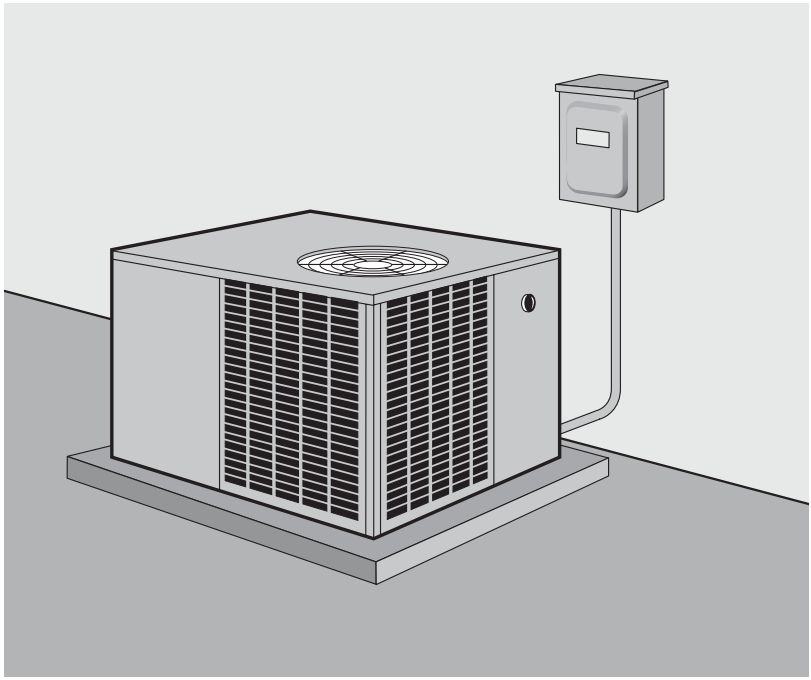
Article 440 – Air-Conditioning and Refrigerating Equipment

T&B PRODUCT: AC Disconnect Switches

Section 440-14 Location.

The disconnecting means shall not be located on panels that are designed to allow access to the air conditioning or refrigeration equipment

ANALYSIS OF CHANGE: Clarification was added to the requirement clearly stating that disconnect switches shall not be mounted to access panels of the equipment.



Disconnecting means shall not be located on panels that are designed to allow access to the equipment.

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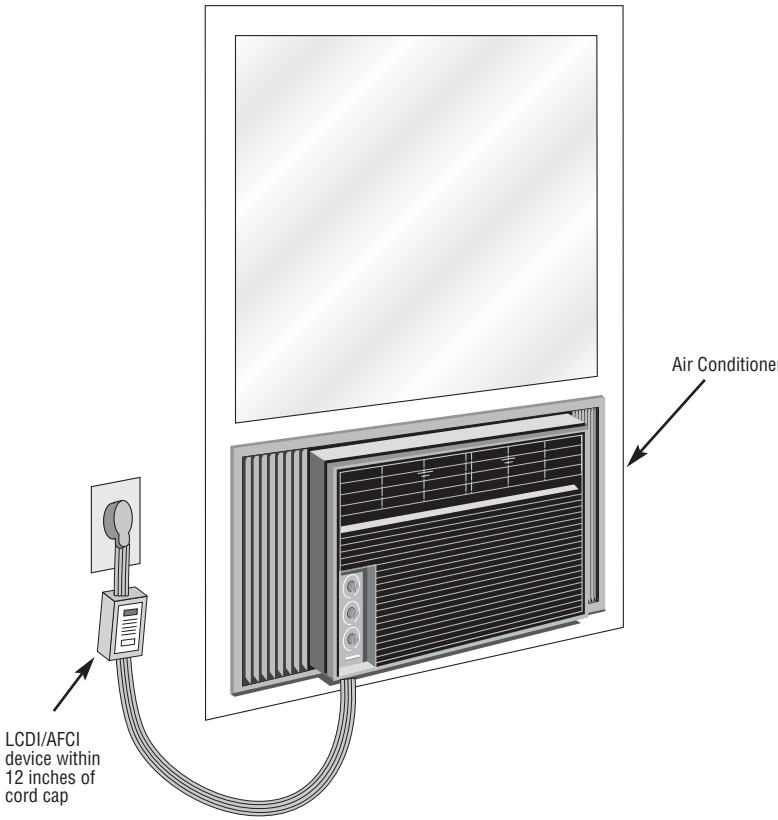
Article 440 – Air-Conditioning and Refrigerating Equipment (Continued)

T&B PRODUCT: Circuit Breakers

Section 440.65 Leakage Current Detection and Interruption (LCDI) and Arc Fault Circuit Interrupter (AFCI).

Leakage current detection and interruption and arc fault circuit interrupter protection must be provided integral to the power cord for room air conditioners.

ANALYSIS OF CHANGE: This is a further expansion of the use of arc detection technology – replacing typical circuit breaker technology.



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T&B PRODUCT: Hazardous locations products

Section All.

The word “approved” has been changed to “listed or identified”. The word approved relies on the electrical inspector to determine the suitability of the equipment. The words “listed or identified” moves this responsibility to a third party testing agency or the manufacturer.

ANALYSIS OF CHANGE: This is a further reduction in the electrical inspector taking on responsibility for installations. Manufacturers are hesitant to further reduce this to require all equipment to be listed. Since there are some unique equipment with low production volumes, the listing of a special product could not be financially justified.

Hazlux® 3/Hazlite ™M3
FIXTURE FITTINGS FOR HAZARDOUS LOCATIONS
SUITABLE FOR USE IN WET LOCATIONS
LAUF MOUNTING BASE UP ONLY

• Hazlux® products shown.

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Article 500 - Hazardous Classified Locations, Classes I, II, and III, Division 1 and 2

T&B PRODUCT: Hazardous locations products

Section 500.2 Entire Article.

The entire article has bee re-organized to improve user friendliness of the NEC. The article is organized in a more logical order he term “unclassified location” has been added to the NEC.

ANALYSIS OF CHANGE: This is a continuation of trying to make the hazardous locations articles easier to use.

Unclassified

Classified

• Steel City® and T&B Conduit Fittings products shown.

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Article 500 - Hazardous Classified Locations, Classes I, II, and III, Division 1 and 2 (Continued)

T&B PRODUCT: Hazardous locations products

Section 500.2 Definitions.

The term “unclassified location” has been added to the NEC.

ANALYSIS OF CHANGE: The word “unclassified location” replaces words “nonhazardous location” and “nonclassified location”.

Unclassified

Classified

Concentric Rings Shown

• T&B Conduit Fittings products shown.

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T&B PRODUCT: Fittings for hazardous locations

Section 502.4(A)(1)(c) Wiring Methods; Class II, Division 1; General.

The word “metallic” replaces the word “aluminum” in describing the sheath of MC cable allowed in Class II Division 1 locations.

ANALYSIS OF CHANGE: Metallic material, other than aluminum, is now permitted as the sheath in Class 2 Division 1 locations.

• T&B Star-Teck® Fittings products shown.

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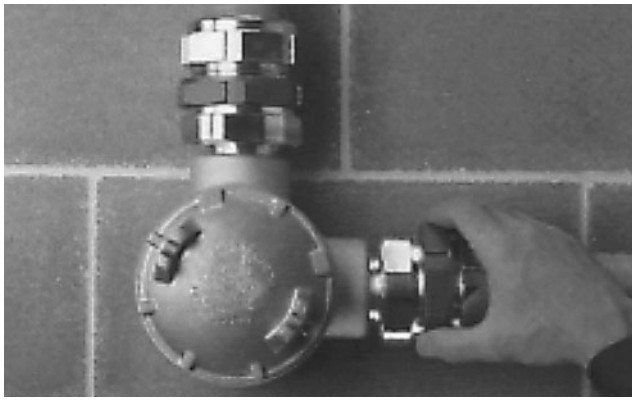
T&B PRODUCT: Boxes and fittings

Section 502.4(B)(4) Wiring Methods; Class II, Div. 2; Boxes and Fittings.

All boxes and fittings in Class II Division 2 locations shall be dust tight.

ANALYSIS OF CHANGE: Previous code language required boxes and fittings to minimize dust entrance. The code was revised to specifically require dust tight products.



• T&B Star-Teck® Fittings products shown.

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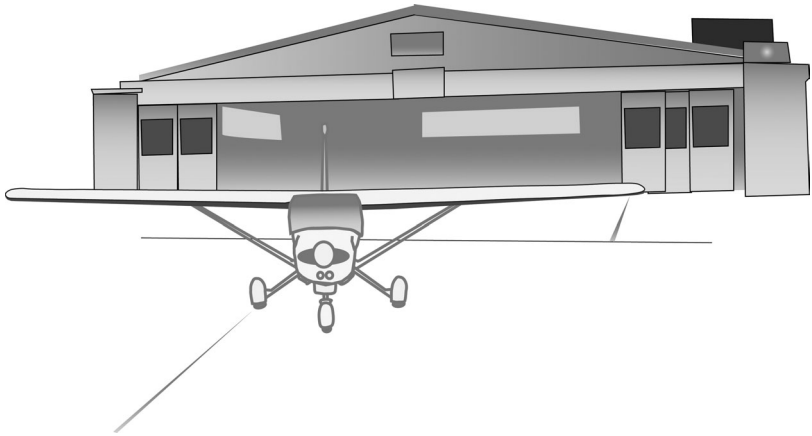
Article 513 - Aircraft Hangars

T&B PRODUCT: Hazardous locations products

Section 513.4 Wiring and Equipment in Class I Locations.

The Zone protection method is now allowed for aircraft hangars and bulk storage plants.

ANALYSIS OF CHANGE: This change is further expansion of the Zone protection system. The system is increasing in popularity and acceptance.



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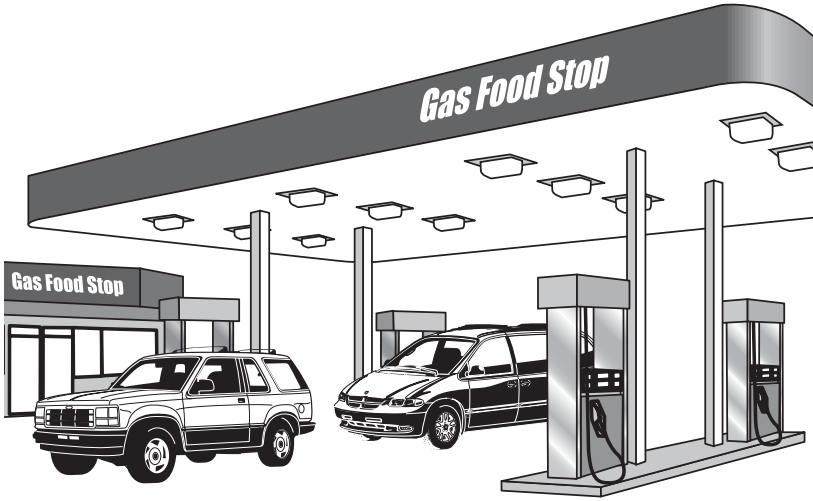
Article 514 - Motor Fuel Dispensing Facilities

T&B PRODUCT: Hazardous locations products

Section Article 514 Title.

The title of the article has been changed from “gasoline” to “motor fuel”.

ANALYSIS OF CHANGE: Due to the expansion of alternative fuels, the code was revised to acknowledge this. The zone protection method is not included in this article.



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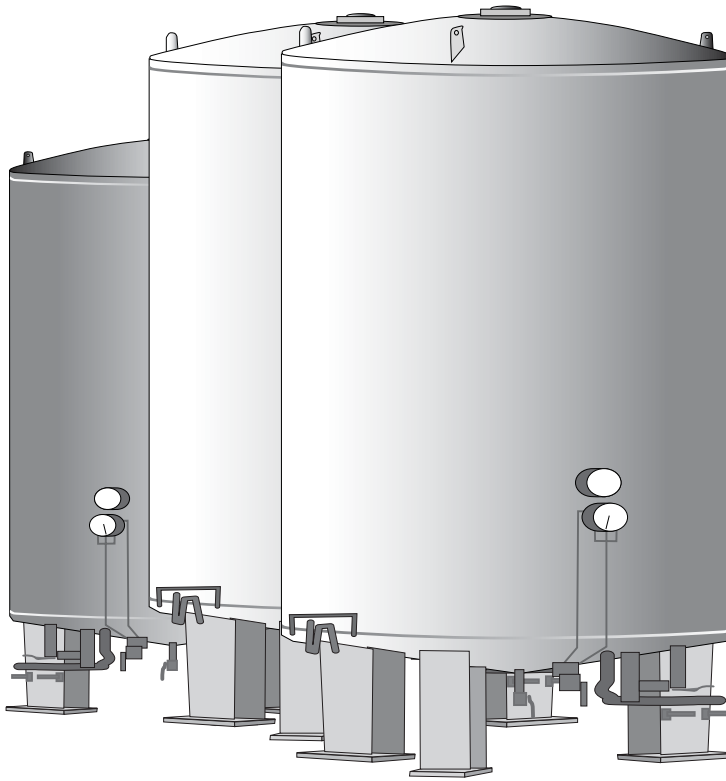
Article 515 - Bulk Storage Plants

T&B PRODUCT: Hazardous locations products

Section 515.4 Wiring and Equipment in Class I Locations.

The Zone protection method is now allowed for aircraft hangars and bulk storage plants.

ANALYSIS OF CHANGE: This change is further expansion of the Zone protection system. The system is increasing in popularity and acceptance.



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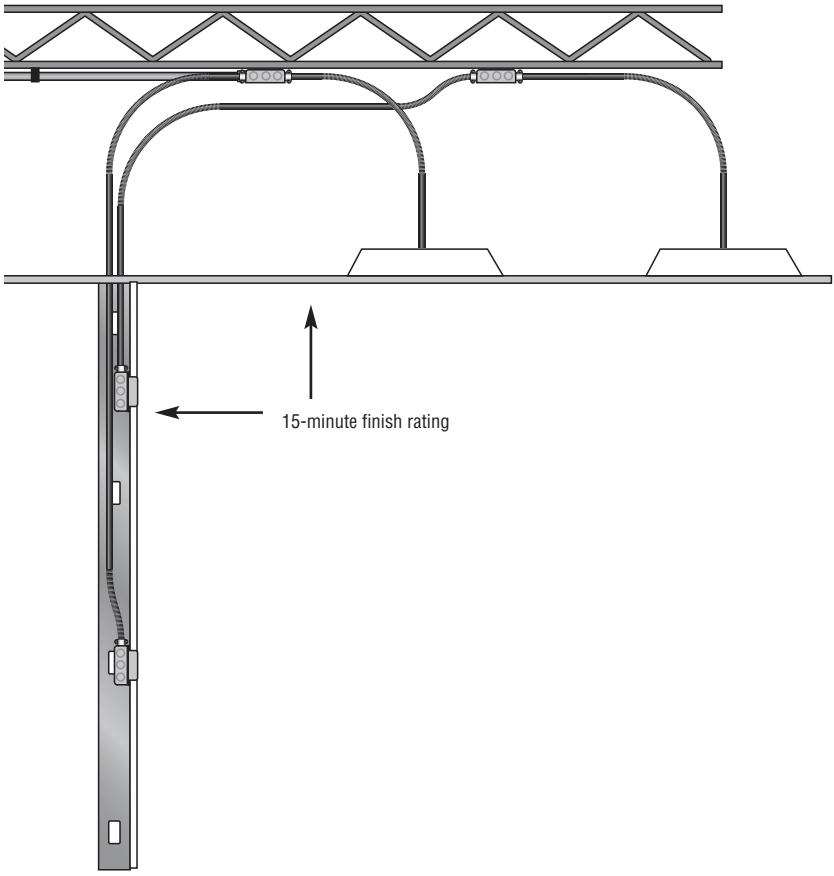
Article 518 - Places of Assembly

T&B PRODUCT: Electrical non-metallic tubing (ENT)

Section 518.4(C) Wiring Methods; Spaces with Finish Rating.

Extension of use of ENT to cover clubs, college/university classrooms, courtrooms, drinking establishments, chapels, mortuaries, and all types of passenger terminals.

ANALYSIS OF CHANGE: Growing acceptance of PVC wiring methods.



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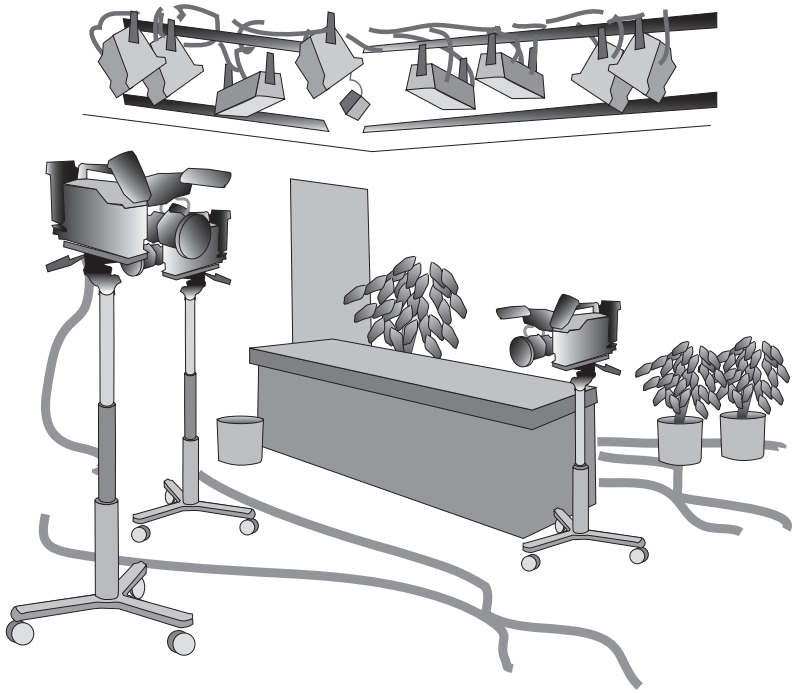
Article 520 - Theaters, Areas of Motion Picture and Television Studios, and Similar Locations

T&B PRODUCT: Fittings

Section 520.5(A) Wiring Method; General.

Type AC cable was added.

ANALYSIS OF CHANGE: Acceptance of an alternate cable type in theaters, audience areas, and areas in picture/tv studios.



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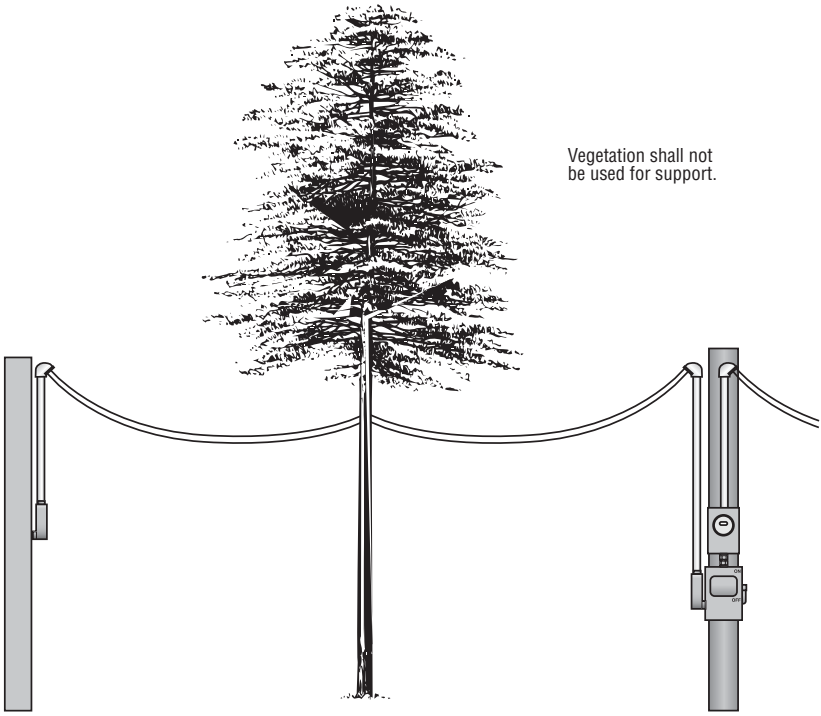
Article 527 - Temporary Installations

T&B PRODUCT: Cable ties, staples, straps

Section 527.4(J) General; Support.

"(J) Support. Cable assemblies and flexible cords and cables shall be supported in place at intervals that ensure that they will be protected from physical damage. Support shall be in the form of staples, cable ties, straps or similar type fittings installed so as not to cause damage. Vegetation shall not be used for support of overhead spans of branch circuits or feeders."

ANALYSIS OF CHANGE: It will no longer be an option to use vegetation to support cables in temporary installations. This means increased opportunity for straps, staples and cable ties.



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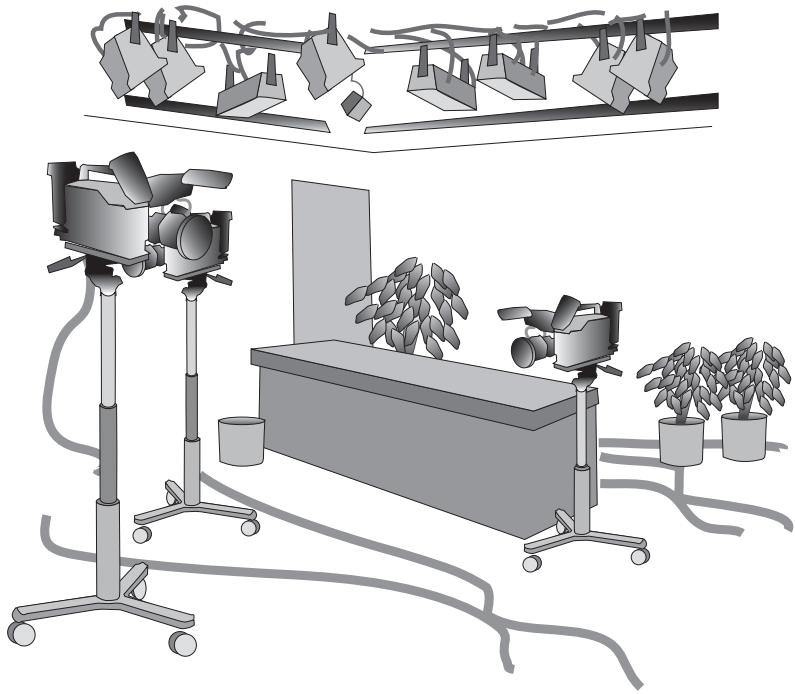
Article 530 - Motion Picture and Television Studios and Similar Locations

T&B PRODUCT: Fittings

Section 530.11 Permanent Wiring.

Type AC cable was added as a permanent wiring method.

ANALYSIS OF CHANGE: On the stage or set, AC cable is now accepted.



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Article 547– Agricultural Buildings

T&B PRODUCT: MC Cable Fittings

Section 547.5 Wiring Methods.

Jacketed MC Cable has been added as an approved wiring method.

ANALYSIS OF CHANGE: A potential for increased demand for MC cable fittings may result from this addition.

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Article 547– Agricultural Buildings (Continued)

T&B PRODUCT: Boxes, Enclosures, Fittings, Conduit Bodies

Section 547.5 (C) Wiring Methods; Equipment Enclosures, Boxes, Conduit Bodies and Fittings.

Text has been restructured to omit the requirement that all these products must be “dust-proof” as defined in the NEC.

ANALYSIS OF CHANGE: The new requirements separate wet locations applications from dust-proof and other adverse environments providing the inspector greater judgement in approving products suitable for the installation environment. This is further supported by the change in Section 547.6.

GUA

OE Series

• T&B Conduit Fittings products shown.

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Article 550 – Mobile Homes, Manufactured Homes, and Mobile Home Parks

T&B PRODUCT: ALL

Section 550.2 Definitions; Manufactured Home.

Manufactured Home. The definition of Manufactured Home was update to correlate with the definition in Part 3280, Manufactured Home Construction and Safety Standards, of the Federal Department of Housing and Urban Development (HUD).

ANALYSIS OF CHANGE: The HUD requirements govern construction of a Manufactured Home for the first owner. The NEC attempts to maintain correlation with the HUD standard with respect to electrical installations.

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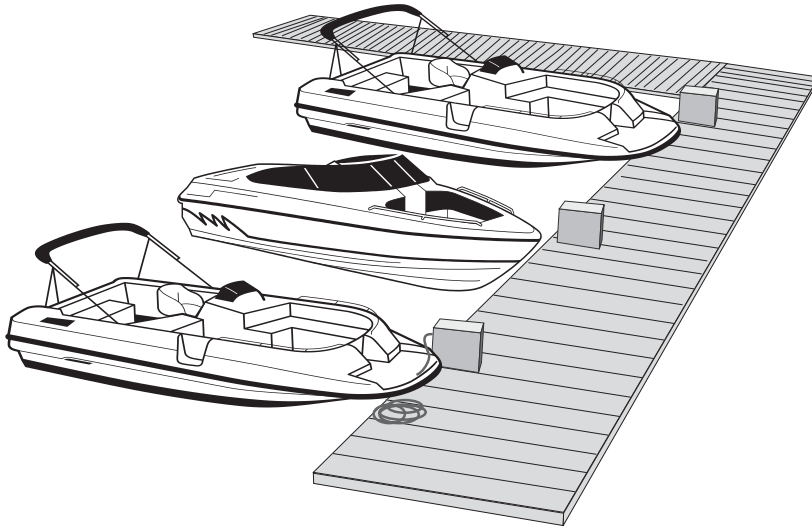
Article 555 – Marinas and Boatyards

T&B PRODUCT: ALL

Section ALL.

This entire Article has been re-written to provide clarity and to correlate with the first edition of NFPA 303-2000, Fire Protection Standard for Marinas and Boatyards.

ANALYSIS OF CHANGE: It is expected at sometime in the future that this Article may be removed from the NEC in favor of the NFPA 303 Code.



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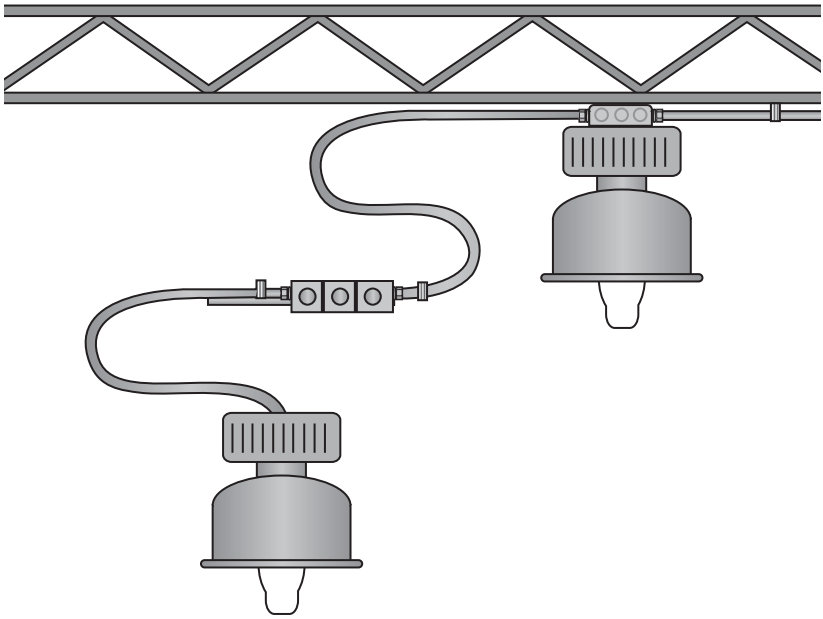
Article 604 - Manufactured Wiring Systems

T&B PRODUCT: Fittings

Section 604.5 Uses Not Permitted.

Uses Not Permitted. Manufactured wiring systems types shall not be permitted where limited by the applicable article in Chapter 3 for the wiring method used in its construction.

ANALYSIS OF CHANGE: Manufactured wiring systems used to be limited by the NEC to be type AC and type MC. This change allows other cable types to be used as long as that cable type is acceptable per Chapter 3.



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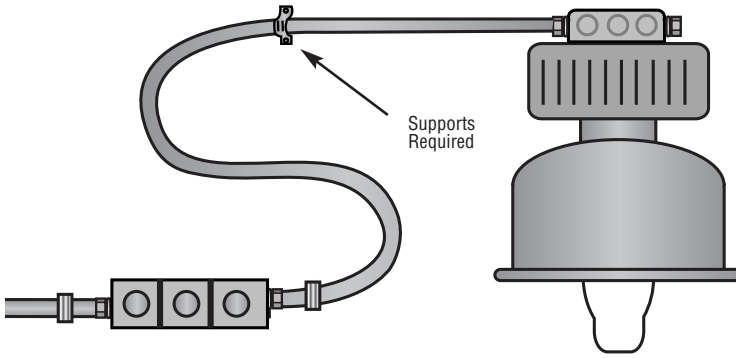
T&B PRODUCT: Conduit hardware

Section 604.6(E) Construction; Support.

Manufactured wiring systems shall be supported in accordance with the applicable cable or conduit article for the cable or conduit type employed

ANALYSIS OF CHANGE: Clarity was added to the code to specify that manufactured wiring systems must be supported in accordance with the cable or conduit type that is used.



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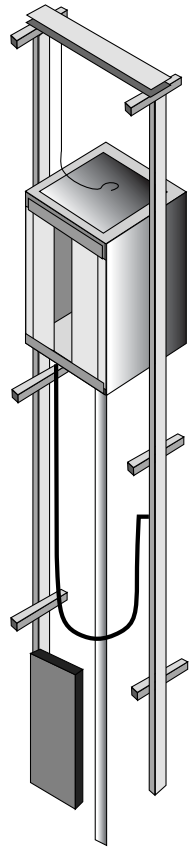
Article 620 - Elevators, Dumbwaiters, Escalators, Moving Walks, Wheelchair and Stairway Chair Lifts

T&B PRODUCT: Industrial Fittings-Cord Connectors

Section 620.21 (A) (1) Wiring Methods; Elevators; Hoistways.

Flexible cords, flexible metal conduit, liquidtight flexible metal conduit, and liquidtight flexible nonmetallic conduit, that are components of listed equipment… have been added as an acceptable wiring method in hoistways of elevators.

ANALYSIS OF CHANGE: Potential for an increase in OEM (elevator manufactures) demand for fittings for these wiring systems. Cord is required to be of the flame-retardant type.



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Article 640 - Audio Signal Processing, Amplification, and Reproduction Equipment

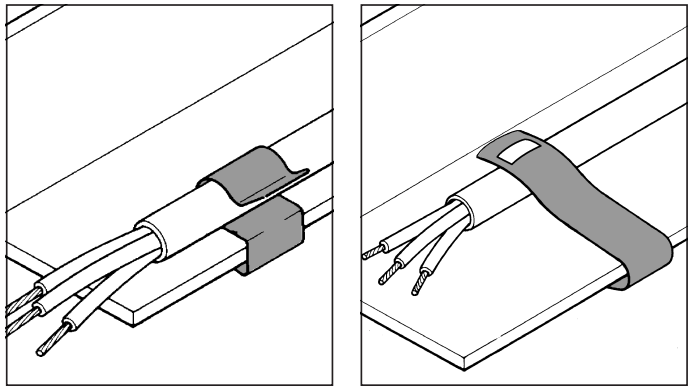
T&B PRODUCT: Cable ties, staples, straps, hangers

Section 640.6 Mechanical Execution of Work.

"Equipment and cabling shall be installed in a neat and workmanlike manner. Cables installed exposed on the surface of ceiling and sidewalls shall be supported by the structural components of the building structure in such a manner that the cable will not be damaged by normal building use. Such cables shall be attached to structural components by straps, staples, hangers, or hangers, or similar fittings designed and installed so as not to damage the cable. The installation shall also conform with 300.4(D)."

ANALYSIS OF CHANGE: This change requires that audio cables be supported using hangers, etc. that are made for the purpose. This creates an additional opportunity for support products manufactured by T&B.

Note: This change was also instituted for Article 725 Class 1, Class 2, and Class 3 Remote-Control, Signaling, and Power-Limited Circuits and Article 760 Fire Alarm Systems.



• Steel City® spring steel fastener products shown.

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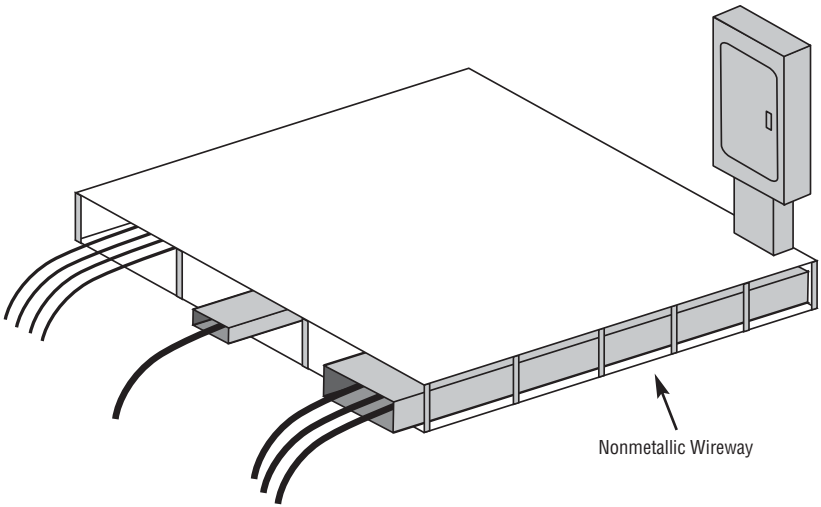
Article 645 - Information Technology Equipment

T&B PRODUCT: Liquidtight Flexible Nonmetallic Conduit, Surface Metal Raceway, Surface Nonmetallic Raceway, and nonmetallic wireway

Section 645.5(D)(2) Supply Circuits and Interconnecting Cables; Under Raised Floors.

"(2) The branch circuit supply conductors to receptacles or field-wired equipment are in rigid metal conduit, rigid nonmetallic conduit, intermediate metal conduit, electrical metallic tubing, electrical nonmetallic tubing, metal wireway, nonmetallic wireway, surface metal raceway with metal cover, nonmetallic surface raceway, flexible metal conduit, liquidtight flexible metal conduit, liquidtight flexible nonmetallic conduit, Type MI cable, Type MC cable, or Type AC cable. These supply conductors shall be installed in accordance with the requirements of 300.11."

ANALYSIS OF CHANGE: The addition of nonmetallic wireway and surface nonmetallic raceway is new and offers additional applications for these products. Also, the rewording of the acceptable liquidtight products clarifies that liquidtight flexible nonmetallic conduit is also permitted.



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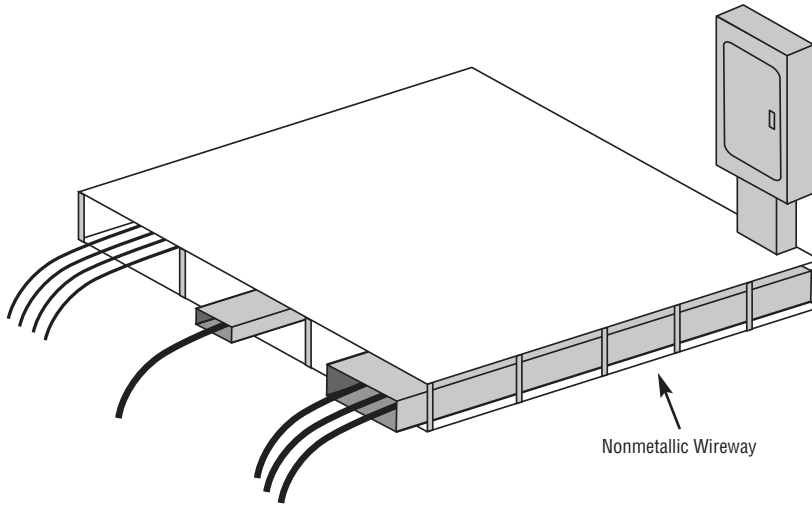
Article 645 – Information Technology Equipment (Continued)

T&B PRODUCT: All

Section 645.5 (D)(6) Supply Circuits and Interconnecting Cables; Under Raised Floors.

Abandoned cables previously used for information technology wiring circuits, installed beneath raised floors, must now be removed.

ANALYSIS OF CHANGE: This particular proposal has no direct impact on a T&B product. It is however, a strong indication of the concern for low smoke and low heat characteristics in electrical components that are intended for installation in areas used for environmental air exchange.



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